

Chemical Week

December 20, 1952

Price 35 cents



► **Banker Soule analyzes corporate financing, urges fresh look at methods, costs p. 20**



Which are the growth companies, which the tide-riders? Here's how to tell p. 24

► **Shock waves jolt out the oil in novel rendering process; nub: no heat, no darkening . . . p. 42**

Specialty makers chortle over bustling sales, but fret about legal posers p. 57

Twist: Coke-maker Semet-Solvay plunges into synthetic benzene, petrochem waxes p. 62

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FIRST in Polymeric Resins

4

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OPINION....

Don't Overlook Holland

TO THE EDITOR: I have read with particular interest your article "Should You Invest in Foreign Research" (Nov. 8) because as a partner in an European and an American consulting and research laboratory, I can completely endorse the general scope of the article.

As an additional advantage, for obtaining quick results, it may be mentioned that working hours in European laboratories average 10% more than in the States and national holidays are considerably fewer.

There was one important omission in your paper, *i.e.*, that nothing was said about the possibilities of Holland. Being one of the focal points of chemical and physical science in the world, the facilities for research work, also in the applied field, are considerable in this country. Moreover, a large number of private consultant laboratories are directly available to clients also from the U.S.A. (see CW, Nov. 29, p. 50). It is not necessary to equip new laboratories, but work can start on short notice by well-trained chemists under supervision of highly specialized experts. Contact is also easy because correspondence by air mail takes only 4-5 days for a reply. Living costs in Holland are lower than in any other West European country.

A list of the Dutch consultants, which are combined in an organization comparable to the Association of Consulting Chemists and Chemical Engineers in New York, may be obtained from writer of this letter.

JACOBUS RINSE
Chemical Consultant
Chemical Research Associates
Bernardsville, N.J.

"Face the Situation"

TO THE EDITOR: Really, do you honestly feel that we organic gardeners are going to ruin the chemical industry?

The frantic views expressed in your editorial (Nov. 8) . . . are very amusing. There is one basic difference between your diatribe, dissertation, etc., and those of the organic farming contributors you condemn . . . that is they probably know what they are talking about. It is quite evident you know nothing about gardening since you speak of no actual experience of your own. . . .

Your opinion that the views of the writer you quoted are irrational is trite . . . he is an agricultural chemist . . . you are an editor. Unless you have

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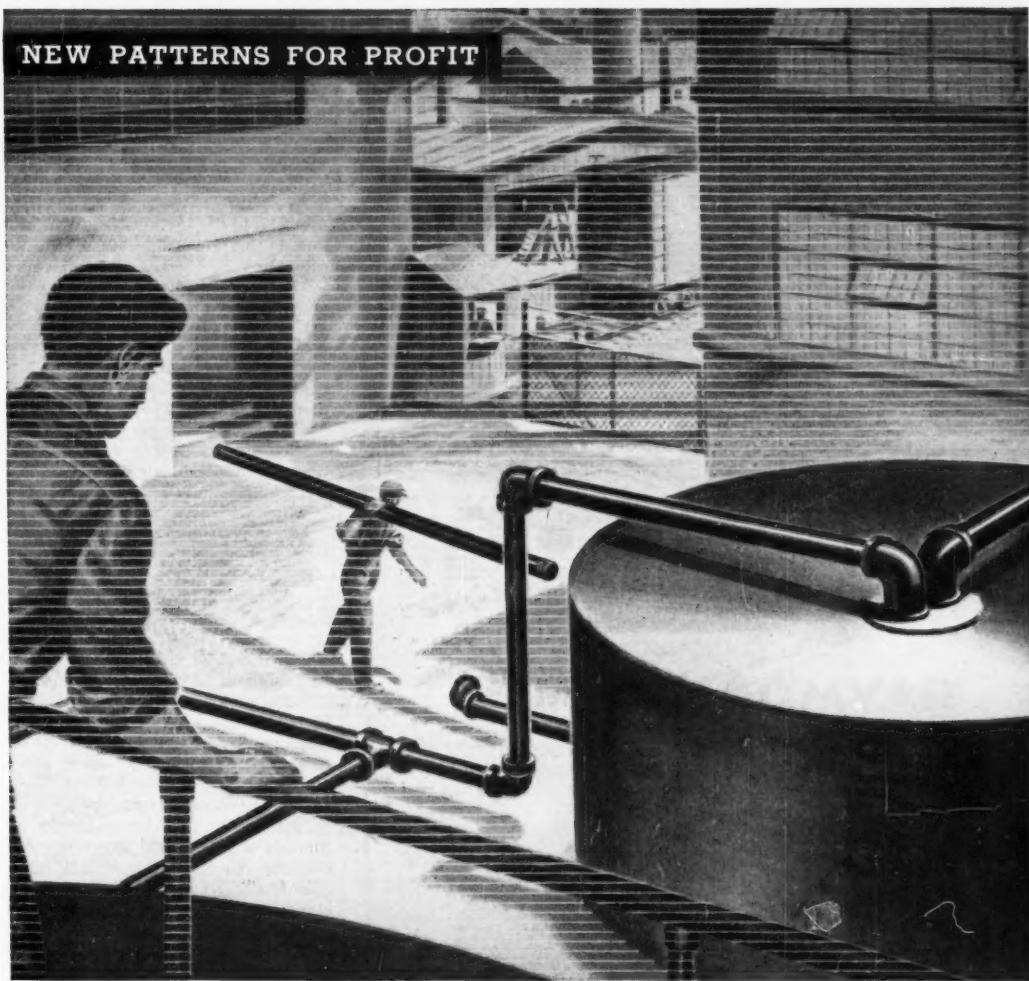
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OPINION

... experience to qualify you to express an opinion . . . your views are irrational to say the least.

Let me tell you that the zeal of organic gardeners . . . to pass on their experiences to others is not primarily a holy crusade against the chemical industry. . . . They merely want to pass on these unbelievable results to others. . . .

It is unfortunate that their experiences should prove that chemicals in agriculture are not as important or necessary as manufacturers would have us believe. As is sometimes the case with hobbies, they expand to the point where present industries become outmoded . . . but your friends should be able to face such a situation and pursue other outlets where they can bestow their blessings upon humanity. . . .

If some horse lovers had their way in the early 1900's . . . that would also cause some complications to the chemical industry. Just imagine the amount of horse manure that would be available as fertilizer. . . .

Your editorial does a grave injustice to those of us who have found . . . the principles of organic gardening to be sound. Don't you know the majority of agricultural and horticultural experts recommend these principles?

Your quotation from the USDA bulletin states that humus tends to promote a proper soil structure. An encyclopedia states that it is a valuable fertilizer. Which of these is a closer statement of fact? . . .

There is one cheering note in your editorial . . . you suggest the chemical industry use the all-powerful weapon "truth." The FTC is constantly on the watch to see that the chemical industry does stick to the truth . . . very often finds it necessary to remind various companies that some of their claims for cure-alls cannot be substantiated.

I am certain the growth of the organic gardening movement . . . or cult as you call it . . . is due to the truth of their claims. . . .

JOHN H. VOSS
Flushing, N. Y.

This we said in our editorial, after listing both the pros and cons of the organic gardening claims: "The coldly scientific, calm and objective views of real soil scientists (e.g., the U.S.D.A. experts) stand in stark contrast to the emotional outpourings of those clinging to the organic farming bias. Facts they are, and none of the humus hucksters can discount them—with facts, that is, rather than with strident half-

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OPINION

truths." The invitation to refute, with factual data, the facts we cited, still stands.—ED.

Truth: Trace Element

TO THE EDITOR: In the letter, "Facts vs. Half-Truths," written by Mr. Kenneth L. Cartwright . . . Mr. Cartwright says: "It is likewise true that plants cannot use organic nutrients . . . all plant nutrients are 'inorganic' when ingested by plants." The statements are largely correct, but not completely so . . . plants can use organic nutrients, especially . . . small molecules such as amino acids. However, undoubtedly most of the nutrients derived from plant residue added to soil are in an inorganic form, having been mineralized by microbial activity.

It is in the possibility, however, that crops may derive benefits from organic compounds derived from plant residue amendments, that the "organic gardeners" may find their most cogent arguments.

This statement is by no means made to strengthen the position of the "organic faddists" but rather to point out that their theories may contain some elements of truth.

RALPH J. HERVEY
Asst. Plant Pathologist
Texas Agricultural Experiment Station
Temple, Texas

Psycho, Ceramo

TO THE EDITOR: . . . If I were you I'd take all those violent and queer letters you get from organic gardeners . . . and forward them all to the nearest psychoceramicist.

. . . And, in case you don't know, that's a fellow who takes care of crackpots. . . .

L. R. STREITER
Los Angeles, Cal.

"Very Fine Report . . ."

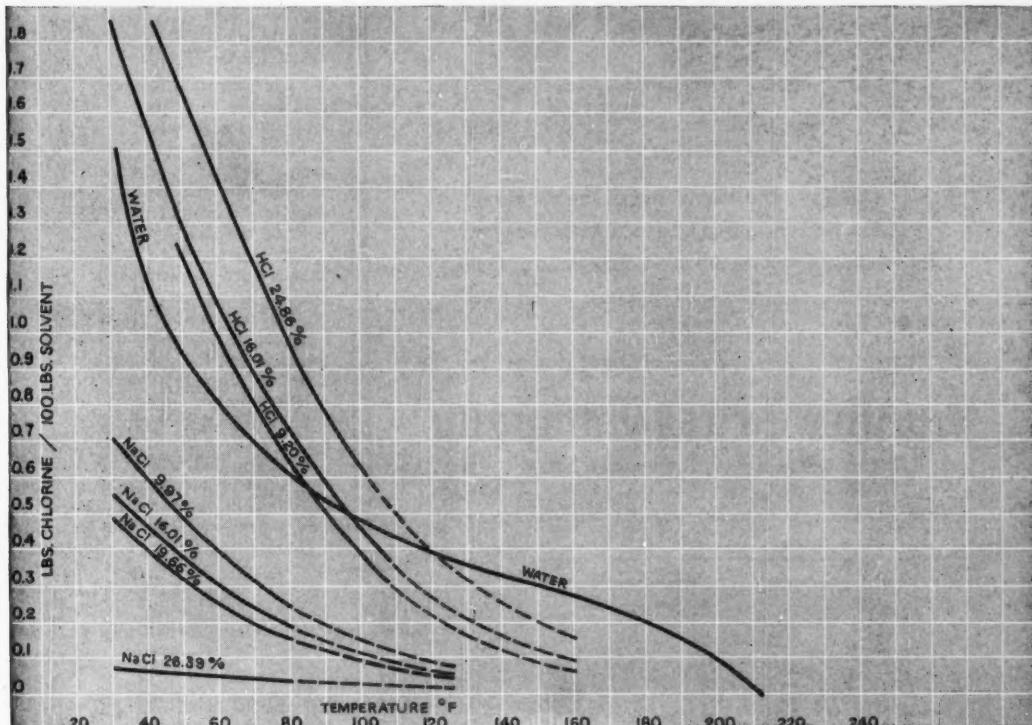
TO THE EDITOR: . . . Very fine report on "The \$100 Million Market for Waxes" which appeared in your September 27th issue. . . .

THOMAS H. REILLY
General Electric Co.
Waterford, N.Y.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

Chemicals you live by



CHLORINE ... solubility in water and other solvents

The solubility of chlorine gas, as found in the literature, is usually given in terms of the absorption coefficient. The solubility curves shown in this chart have been prepared using the more practical weight units. The solubility of chlorine is shown for water, salt solutions and hydrochloric acid solutions as the solvents.

Chlorine forms with water a hydrate $\text{Cl}_2 \cdot 8\text{H}_2\text{O}$ at temperatures below 9.6°C . at atmospheric pressure. The system Cl_2 and H_2O is claimed to have two invariant points, one at 0.24°C . and 244

mm Hg pressure, and the other at 28.7°C . and 6 atmospheres pressure.

Chlorine is appreciably soluble in a number of organic solvents, particularly at low temperatures. As examples of this phenomenon, Taylor and Hildebrand give the following data: A saturated solution of chlorine in heptane at 0°C . contained 20.36% chlorine by weight. A saturated solution of chlorine in carbon tetrachloride at 0°C ., 19°C . and 40°C . contained 15.6%, 8.48%, and 4.33% chlorine by weight, respectively.

This is a section from our Chlorine Handbook, written for those who are concerned with the applications of chlorine. 43 pages, charts, bibliography. A copy is yours free for the asking.



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OPINION

Finny Fare

TO THE EDITOR: I wish each fish
Plumb to the gill
Would stuff itself
With chlorophyll!

H. L. BRODEUR
Pittsburgh, Pa.

Less Time, Strain

TO THE EDITOR: Most every businessman in the chemical trade finds his desk piled high with reading matter of all kinds. It is quite a chore to give each portion of it sufficient scanning to make sure you haven't missed anything important and yet get the other tasks of the day done.

I want to say that CHEMICAL WEEK has provided me with a great deal of help. I simply get it out first thing . . . find that in about twenty minutes I can find out most of what has happened during the past week at a considerable saving of time and strain.

Others in the organization do the same thing so there is quite a scramble for copies . . . when they come in . . .

It is especially useful for us businessmen who are not primarily concerned with technical subjects, but who want to know what has happened in terms of dollars-and-cents in the industry.

G. A. McLAUGHLIN
President
McLaughlin Gormley King Co.
Minneapolis, Minn.

MEETINGS . . .

Amer. Society of Mechanical Engineers and Society for Advancement of Management, plant maintenance conference, Cleveland, O., Jan. 19-22.

Society of Plastics Engineers, Inc., ninth annual technical conference, Hotel Statler, Boston, Mass., Jan. 21-23.

Commercial Chemical Development Assn., first 1953 meeting, Hotel Statler, Cleveland, O., Jan. 22.

Compressed Gas Assn., Inc., 40th annual meeting, Waldorf-Astoria, New York, N.Y., Jan. 26-27.

Manufacturing Chemists' Assn., Inc., 1953 industry conference on air pollution abatement, Hotel Statler, Detroit, Mich., Feb. 26-27.

Nat'l Assn. of Corrosion Engineers, 1953 conference, Chicago, Ill., March 16-20.
Magnesium Assn., first Internat'l Magnesium Exposition, National Guard Armory, Washington, D.C., March 31-April 2.

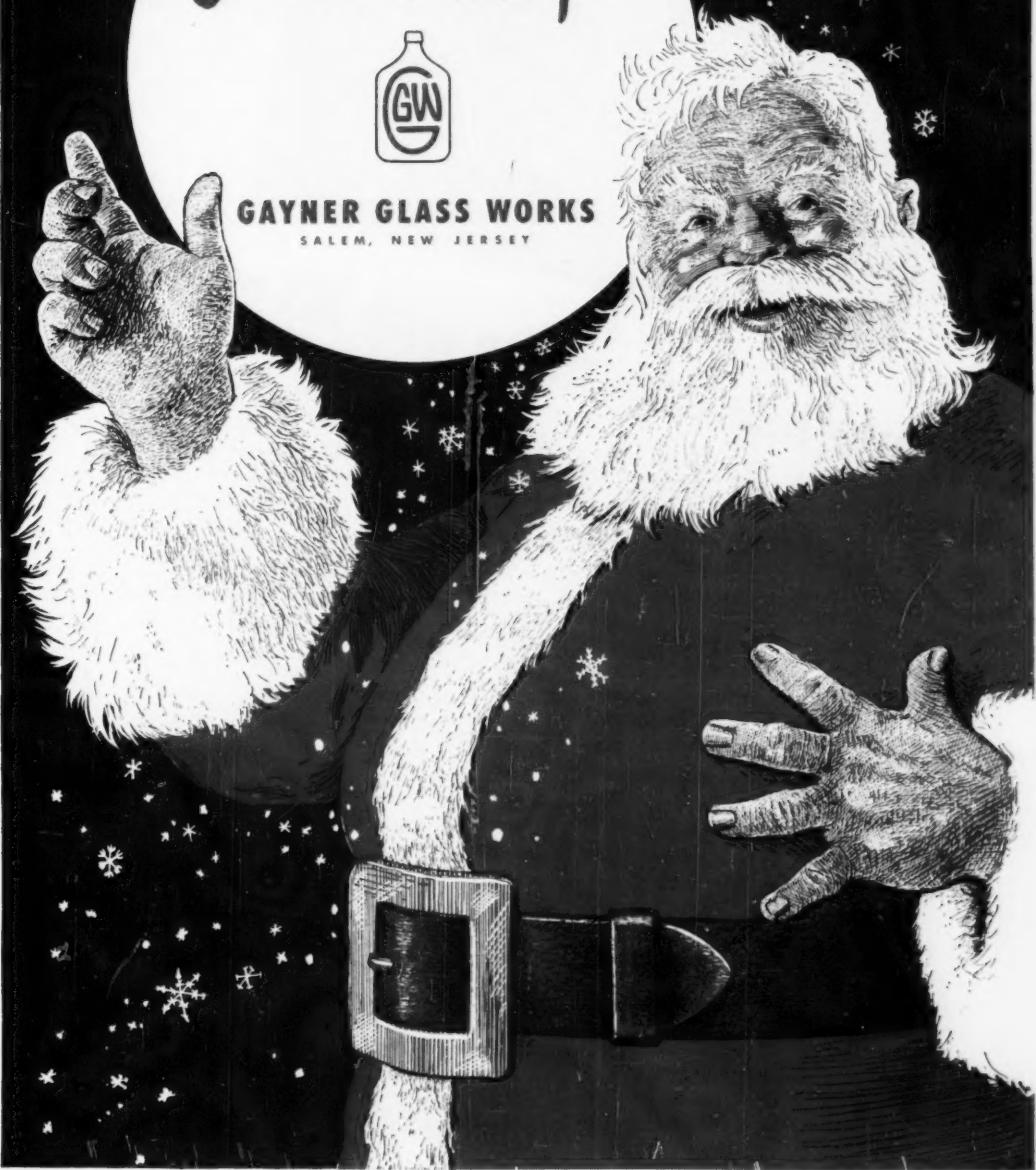
Packaging Machinery Mfrs. Institute, semi-annual meeting, Sheraton Hotel, Chicago, Ill., April 18-19.

Season's Greetings!



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For complete description, capacity charts and other engineering data on types ND and NU, write for our Bulletin 125. The Cleveland Worm & Gear Company, 3291 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited



NEWSLETTER

John L. Lewis' United Mine Workers District 50, third-ranking union in terms of chemical employee membership, denounces both Martin P. Durkin, Eisenhower's Secretary-designate of Labor, and George Meany, the American Federation of Labor's new president.

This week's issue of District 50's newspaper lambastes Meany as a "pussyfooting apostle of peace"; Durkin is scorned as a Meany "protege." Why? Because Lewis never has liked, never will like the Taft-Hartley Act. At the 1947 AFL convention—just after the T-H law was passed and while UMW was still in the AFL—Meany argued for complying with the act, and Lewis accused him of cowardice. Durkin, as chief of the AFL Plumbers Union, then nominated Meany for reelection as AFL secretary-treasurer.

The outburst probably won't deter AFL-CIO unity talks, but it highlights implacable opposition to the present labor act, shows that the new administration won't enjoy a love feast with the doughty despot of UMW.

More localized, but just as hot, is a fight going on between Tacoma and Wenatchee. The two Washington cities take different views of the reactivation of a second potline at Alcoa's Wenatchee plant.

The Tacoma Central Labor Council has protested that diversion of precious power to aluminum reduction, while restoring 100 jobs at Wenatchee, may deprive many more than 100 Tacoma workers of their jobs. Their reasoning: A man-hour in aluminum manufacture takes 600 kwh of power, but a chemical industry man-hour takes less than 100 kwh (and a lumber industry man-hour takes less than 2).

More fuel for the battery-additive controversy (CW, Sept. 22, '51): the Massachusetts Institute of Technology study, now ready for distribution, on AD-X2, the battery rejuvenator that sparked most of the arguments.

This report is favorable, contradicts an earlier one made by two National Bureau of Standards men. The two men, incidentally, have left NBS to join a battery-manufacturing firm.

The MIT work was carried out at the behest of the Sparkman Committee, which has been highly critical of some aspects of NBS's work.

Here's an additional advantage to research and development activities: It took seven years to do it, but Du Pont has finally received a \$29 million refund on its wartime \$463-million tax bill.

Wartime excess profits taxes were based on company earnings during the 1936-39 quadrennium. Du Pont contended that its development work on such items as nylon would, in normal times, have increased its earnings.

The refund thus gave tacit, if belated, government recognition to the growth character of some segments of industry.

But this "Christmas package" at home doesn't absolve Du Pont from worries about litigation abroad. Policy on nylon patents hinges to a considerable extent on a suit to be tried a few weeks hence in England. British Nylon Spinners and Imperial Chemical Industries (its half-parent,

NEWSLETTER

since ICI owns 50% of BNS) are the litigants, and the question is the legality of the contract by which ICI sublets Du Pont patents to BNS.

Whatever the outcome, this much seems clear: The British Government won't let British companies break British law to satisfy a U. S. court order; nor will it allow the dilemma to be resolved in such a way that it either increases Britain's dollar outlay or imperils Britain's Nylon industry.

"Unfounded and unfair" is the Association of American Soap & Glycerine Producers' retort to the Justice Dept.'s recent suit against soap's Big Three (see p. 16). George B. Wrisley, the association head and soap maker himself, termed the charges that P&G, Lever, and Colgate dominate the organization "difficult to understand" since they are just three of the 160 association members, and have only three members on the group's 15-man board of directors.

What does next year look like? The time for year-end statements has arrived, and the consensus of the early ones is cautious optimism.

• B. F. Goodrich's President John L. Collyer sees a slight gain in rubber consumption next year—from 1,240,000 to 1,275,000 long tons, of which about 60% will be synthetic.

• Bakelite's George C. Miller, vice-president in charge of sales, sees a possible record year ahead for plastics, after a downturn this year from the 1951 record level. "Plastics will do considerably better than business in general," he contends.

Goodrich Chemical's President John R. Hoover sees a challenge to cut production and distribution costs, since competition will heighten as raw materials swing into ample supply. He points out that taxes and higher along-the-line costs have cut earnings in spite of higher sales.

Higher manufacturing costs are being fought in a hearing before the State Public Service Commission at Buffalo, N. Y., where Stauffer Chemical is protesting a rate increase by Niagara-Mohawk Power Co.

Stauffer says it wouldn't have spent \$6 million on expansion in the Niagara Falls area if it had known it might be placed at "an economic disadvantage"; the firm claims that the 37% hike in its annual electric bill means it would be paying considerably more per kilowatt-hour than such competitors as Hooker, Mathieson and Niagara Alkali.

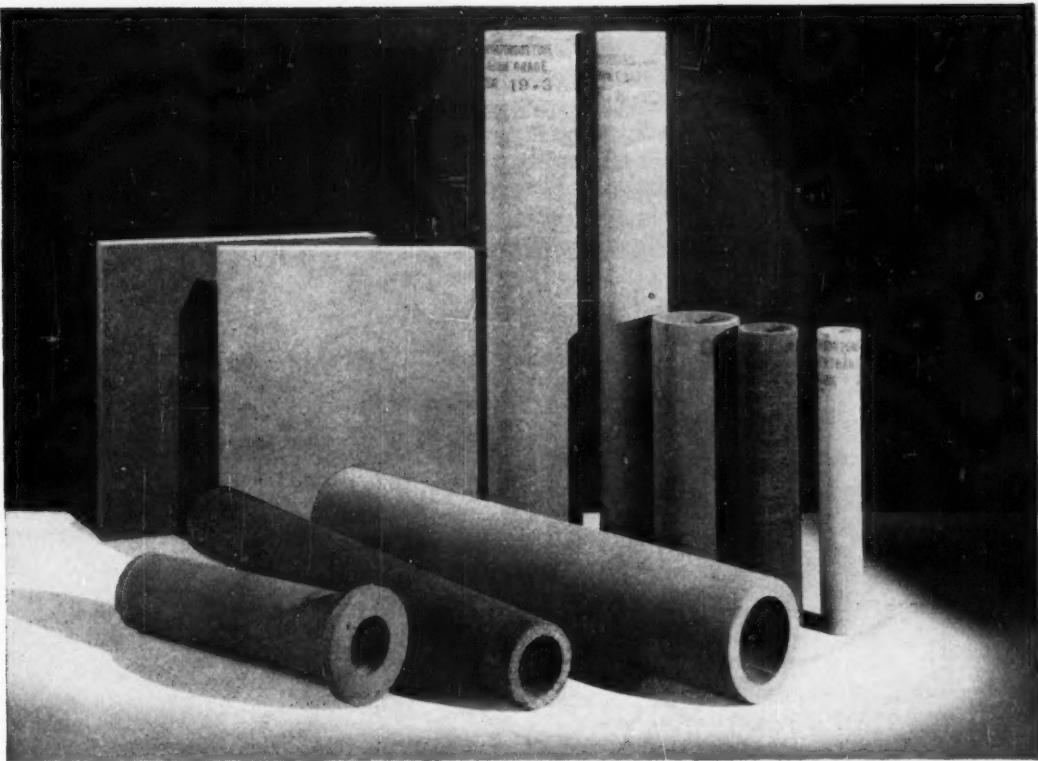
Power rates are only one phase of the problem facing the Buffalo-Niagara Falls area. "Cost of land, the labor situation and the cost of doing business in New York State" are other factors cited by an official of a large firm there which is looking elsewhere for a plant site. Many plants originally scheduled for that vicinity have, for one or more of these reasons, been built in other areas, he says.

It's electric power in New York, natural gas in Texas that ruffles tempers among businessmen and government officials alike.

The University of Texas Bureau of Business Research has just brought out a report, "Economics of Natural Gas," viewing with misgivings the tax load carried by oil and gas operators. If gas is used simply as fuel, it represents only 1.5% of typical product cost, says the Bureau, and taxes have little over-all effect. "However, such is not the case for industries using . . . natural gas . . . as raw material."

Oil and gas operators pay about two-thirds of all state taxes. Sulfur is taxed too, but other extractive industries—salt, gypsum, coal, iron ore, lignite and timber—carry no special levies.

... The Editors



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BUSINESS & INDUSTRY



FPC's LONGENECKER, FDA's CRAWFORD: How adequate are our food laws?

Food Fight Merry-go-Round

Now that the Supreme Court has limited FDA's powers to inspect plants, you can expect the agency to pull out all the stops on its publicity calliope. FDA wants Congress to grant broader inspection powers, and give it greater control over intentional food additives.

Food and drug officials were in the thick of the news last week. The points in focus: Are the Food and Drug Administration's present powers adequate for its work? If changes are needed, what should they be? And in what direction?

The views on these questions last week ran a considerable gamut:

- The Supreme Court feels that FDA went beyond its authorized powers when it filed a criminal action against a plant operator who refused admission to FDA inspectors.

- The American Pharmaceutical Manufacturers Association's legal counsel contends that FDA wants to use its Food, Drug and Cosmetic Act powers to rule on the efficacy as well as the safety of new materials.

- FDA Commissioner Charles W. Crawford, speaking to the National Food and Nutrition Institute, reiterated his point that there is a serious gap in consumer protection in the use of intentional food additives.

Each of these items underlined the

fact that a concerted effort to amend food and drug laws will be made in Congress. The outcome is another question, however.

Despite the long-heralded change in atmosphere, Congress isn't expected seriously to limit FDA powers. But by the same token, there is not much likelihood of broad extension to the Food and Drug statutes.

FDA, Commissioner Crawford has said, stands on its record. And it has, in general, done a competent job. Among the few questionable points are these: It has held that manufacturers should be forced to refund money to those purchasers of goods who had relied on misrepresented labels in buying the product, even though no purchaser asked for such refund. It has viewed that advertising of a product (even when out of control of the manufacturer) is an extension of the manufacturer's label, thus may be used to prove misbranding or adulteration. In one case, a three-judge statutory court found that FDA officials had

acted "capriciously, arbitrarily, unreasonably, oppressively and unlawfully." But this case was an exception, and certainly not the rule.

Inspection Import: The Supreme Court's action in limiting FDA's inspection powers was apparently based on vagueness in the law. There are, of course, reasons other than fear of prosecution for which a plant manager could refuse inspection. He could do so on constitutional grounds; he might be wanting to protect secret processing details.

Justice William O. Douglas, who wrote the court's opinion, said that no matter how he read the law, it does not give fair warning to a plant manager that if he fails to give permission for an inspection, he is liable to be judged a criminal.

Actually, the court's curtailment will mean little. Most manufacturers welcome FDA inspectors. Only place where it may hurt FDA is in checking on operators on the "shady fringe."

Crawford's Lament: Departing from the text of his speech at the nutrition meeting,* Crawford stressed the need for new legislation to broaden FDA's inspecting powers.

In his prepared speech, he dwelt mainly on the need for consumer education to overcome the influence of

* Prepared before the Supreme Court handed down its decision.

self-designated "authorities" who tout theories on soil depletion, organic farming and sub-clinical deficiencies of food elements.

On food additives, Crawford told his audience of home economists, nutrition experts that "a ferment of competitive development in the food and chemical industries aimed at improvement of food is stimulating the use of additives . . . but testing programs and methods of testing have not kept up with risks imposed by new development."

Thus, he said, though many testing programs are adequate, a new law section covering chemical additives is necessary.

H. E. Longenecker, chairman of the National Research Council's Food Protection Committee, pointed out one fact often overlooked in discussing intentional food additives: "The problem of defining the point of safety remains, whatever the law."

Pharmaceutical Problem: The pharmaceutical makers' counsel, Charles Wesley Dunn, urged that companies oppose all demands for additional controls which would hinge more on arbitrary standards of usefulness rather than on safety.

The point made by Dunn, a noted authority on food-drug-cosmetic legal problems, is one which has been echoed in fields other than drugs. A main fear of chemical food additive manufacturers is subordination of safety considerations to opinions on utility. (A chemical company lawyer quotes this rationalization from a lower-echelon FDA official: "Well, I don't think housewives needed sliced bread, either.")

FDA, incidentally, has increased its Washington public relations program. A few days ago, it invited 10 Washington newspapermen to tour its laboratories. Also, it has begun work with its consumer advisory panel, consisting of 16 women, one from each of its regional districts. The panel was set up to examine consumer opinions on such subjects as what constitutes a label or whether consumers read the list of materials contained in a food product.

Such activities, correctly administered, are good—and justifiable—public relations. But some observers have wondered about the timing, coincidental with the start of a campaign for food law amendment.

Congressional Confab: There is a good chance that some proposed changes will get serious discussion in Congress. But manufacturers with the most at stake feel that they will be able to give an adequate presenta-

Repeat Performance for Soap-Makers

Cleanliness may rank next to godliness, but the U. S. Department of Justice professes to see a monopolistic motive behind the operations of the country's three largest manufacturers of soaps and detergents: Procter & Gamble, Colgate-Palmolive-Peet, and Lever Bros.

After having prosecuted the same three companies in 1942 (instead of contesting the case, the companies paid fines totaling \$60,000) and having led a federal grand jury in Newark, N. J., on a minute investigation of the soap business during the past six months (the jury voted not to indict), the Department's Antitrust Division last week filed a civil suit in U. S. District Court in Newark calling on those companies for another go-around of litigation under the Sherman Antitrust Act. Also named as defendant: the Association of American Soap & Glycerine Producers, Inc.

This time, however, the soap-makers aren't going to be mild and meek in their court appearance; presidents of all three companies were quick to say that they would fight the suit and expected to win.

Ask Break-Up: The government is asking the court to split up the three

large companies into an unspecified number of independent companies "so as to restore competitive conditions" in the industry.

These are the principal charges that are alleged by the government and vigorously denied by the defendants:

- That the companies have continued to monopolize the industry since the 1942 law suit, preventing new producers from getting a foothold in the business.
- That companies in the business have been restrained from marketing new products.
- That the three big companies dominated the trade association, causing it to assist them in their "conspiracy."
- That the companies exchanged marketing information and fixed prices.
- That the companies shared patents, processes and apparatus for making spray-dried soap products.
- That the companies controlled production and prices of glycerine and practically controlled prices of tallow and grease.
- That the companies acquired exclusive patent rights controlling base materials and processes for making detergents.

tion of their case. They fear legislation that would be overly restrictive, whether administered by the FDA that way or not.

Say they: Good intentions and a good record are no substitute for a good law.

EXPANSION . . .

Synthetic Vanillin: Ontario Paper Co. has started production of synthetic vanillin from waste sulfite liquors at Thorold, Ont. The paper company already produces industrial alcohol as a by-product of pulping.

Sulfur Recovery: Gulf Oil Corp. is now operating a new sulfur recovery unit at Port Arthur, Tex. The sulfur, recovered in liquid form from hydrogen sulfide extracted from refinery "off gases," will be converted into sulfuric acid used in its alkylation process.

Bauxite: Reynolds Metals Co. has purchased all assets of Berdice Co. Ltd., British Guiana, subsidiary of American Cyanamid Co. The sale includes plants, machinery, transportation equipment, and a stockpile of high-grade ore containing 58½% alumina. Reynolds has other mining con-

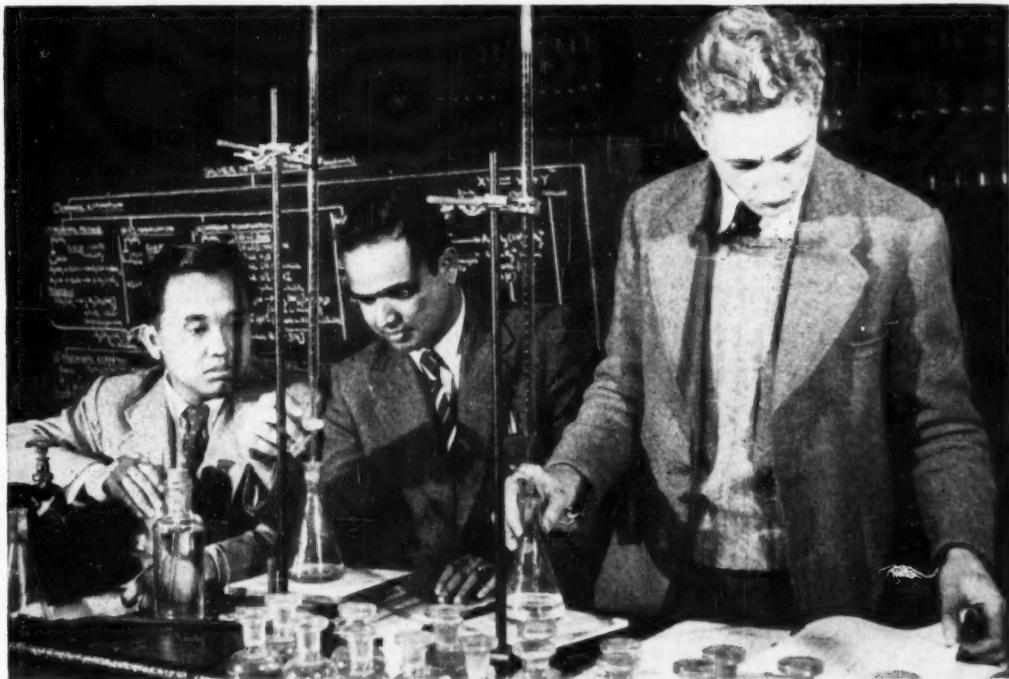
cessions in Dutch Guiana, Haiti and Jamaica; but to date the bulk of its bauxite has come from mines in Arkansas.

Recently, Reynolds entered into a 29-year contract to supply alumina requirements of Anaconda Copper Co., and the capacity of the new plant in British Guiana is expected to assure a substantial part of the bauxite needed for this purpose.

Glass Fiber: American Air Filter Co. plans construction of a glass fiber plant in Louisville, Ky., to be run by its wholly owned subsidiary, Famco. Completion of the plant is expected by Aug. '53.

Paper: Olin Industries Inc.'s alleged decision to build a \$30 million paper mill in Louisiana is said to have been influenced largely by Arkansas' "unrealistic tax status." Olin last year purchased all rail and lumber holdings of the Frost Lumber Industries, Inc., in Arkansas, Louisiana and Texas. It subsequently planned to build a large paper mill, with tentative sites in both Ark. and La.

Water, transportation and material sources are reported to have been other factors involved.

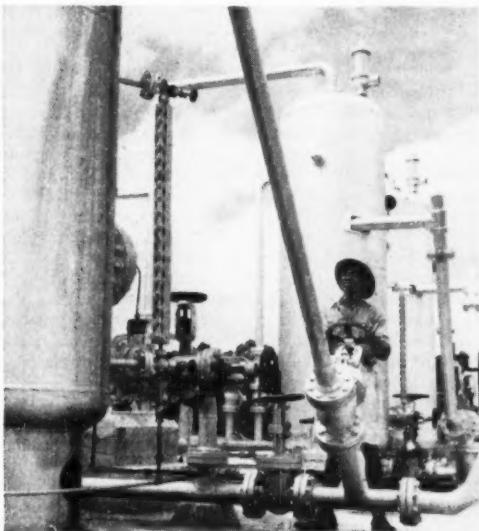


LEARNING NEW SKILLS: Two East Indians work alongside a Briton in a chemical training center.

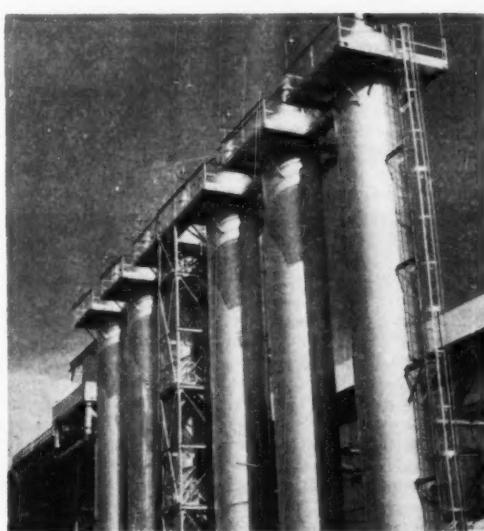
Britain's Billions, Asia's Aid

Where the United States has its Point Four program, Britain has its Colombo Plan to help development of South and Southeast Asia. But where U.S. assistance there is to total \$250 million, the Colombo expenditures will equal \$5.4 billion by June, 1957. The long-term plans to

develop natural wealth and raise living standards (and short-term famine relief) are administered under the direction of Rajendra Coomaraswamy. In addition to constructing physical facilities, better than 650 operating technicians have already been trained.



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FOR REFINING: New techniques.

LEGAL

Chemical Firm Sued: Down in Baltimore an employee of Mutual Chemical Co. of America has sued that concern and its examining physician for \$150,000. Leonard Kalbskoff says in his complaint that because the physician failed to observe Kalbskoff's tubercular condition when he applied for a job in March, 1951, his condition became more serious and his three daughters contracted the disease from him. The company hired Kalbskoff as a pipefitter. Four months later, he became too sick to work, and a second examination showed the TB. The physician then looked back at the X-ray films from the first examination and observed that they also showed the presence of the disease.

State Asks \$5 Million: Texas is suing for \$5 million for its "unlawful possession" plus the state's share in bonuses, rentals and royalties from mineral rights on 4,000 acres of land in Duval county. State Attorney-General Price Daniel says the land is owned by the state for its permanent free public school fund, and that the surface owner, Duval County Ranch Co., had no right to convey all mineral rights to The Texas Co.

LABOR

Unions' Accretion: Both of the two major labor unions in the CPI have scored important victories in recent bargaining elections:

- The AFL Chemical Workers boosted their strength in ordnance works by winning the bargaining agency at the Lone Star Ordnance Plant in Texarkana, Texas, receiving 2,065 votes.

- The CIO Gas, Coke & Chemical Workers have won the right to represent production and maintenance employees of Carbide & Carbon Chemical Co. at the atomic energy plant in Paducah, Ky. With 529 persons voting out of the 582 eligible, Gas-Coke received 301 ballots compared to 223 for the AFL Atomic Metals Trades Council.

Dye Strike Ends: Among the more significant chemical labor contracts reported this week:

- General Aniline & Film is reopening its plant at Rensselaer, N.Y., after a 15-week strike by some 500 AFL Chemical Workers. The new contract, running to June 1, 1954, provides a general wage increase of 4¢/hour, effective next June 1; and a lump sum payment of \$75 for each employee who returns to work within

DPA's LATEST TAX WRITE-OFF LIST

Company, Location	Product	Amount Certified	% Certified
General Electric Co., Waterford, N.Y.	Methyl chloride	\$10,410,000	60
Olin Industries, Inc., East Alton, Ill.	Primary aluminum	123,300,000	85
Freeport Sulphur Co., Freeport, Tex.	Sulfur	2,730,000	70
Climax Uranium Co., Grand Junction, Colo.	Uranium concentrates	283,253	80
Panogen, Inc., Boulder, Colo.	Uranium ore	22,123	80
Hanna Coal and Ore Corp., Douglas, Ore.	Fungicides	67,220	45
Corpus Christi Oxygen Co., Corpus Christi, Tex.	Ferro-nickel	22,000,000	70
International Minerals & Chemical Corp.	Oxygen	356,000	35
R. M. Hollingshead Corp., Camden, N.J.	Sulfuric acid	412,500	45
	Military chemicals	337,950	45

one week. The union had asked a 5½¢ rise and a cost-of-living clause.

- Hoffman-LaRoche Pharmaceutical's 10¢/hour boost for 1,462 employees at its plant in Nutley, N.J., has been okayed by WSB.

- Southern Alkali and CIO Gas-Coke have signed a contract ending a two-month strike at the plant in Corpus Christi, Texas. The 478 employees will receive an 11¢ wage rise, 6 paid holidays per year, and three-week paid vacations after 15 years' service.

- WSB has extended its blessing to an 8¢ pay increase and a new retirement plan for employees of Sun Chemical at Norwood, Mass. The workers, members of the AFL Firemen & Oilers union, are to receive \$125/month at retirement age 65.

- Four Gas-Coke locals in New Jersey have new pacts for 1953. Anigraphic Process, Inc., is granting a 6¢ increase and a 48-hour layoff notice; Spencer Kellogg & Sons, a three-year contract w/ a 5½¢ wage boost and quarterly cost-of-living adjustments; Archer-Daniels-Midland, a 2¢ increase plus an additional 5¢ subject to WSB approval and an increase in pension benefits to \$125/month including social security payments; and River Plate Import & Export Co., a 5¢ wage hike, \$75 Christmas bonus, and three days off with pay in case of death in the family.

Hitting the Rough Spots: In a few instances, labor relations have been curdled by strikes and jurisdictional rivalry.

- When it was reported that General Aniline had offered a pay increase to its striking employees at Rensselaer, N.Y., workers at the Binghamton plant of Anasco (a General Aniline division) took encouragement. During negotiations with three unions, and with a fourth union's contract due to expire soon, Anasco has insisted that it's not in position to raise wages this year. Some union officials are contending that the boost given to the Rensselaer strikers indicates a break in General Aniline's stand.

- Anasco also is involved in a law-

suit filed by the AFL Chemical Workers, who have asked the state supreme court to order the company to arbitrate a dispute over the discharge of three union members. Anasco says the union's grievance is "entirely baseless and without merit"; the union claims the men were fired "without sufficient cause" and should be reinstated with back pay.

COMPANIES

Matheson/Coleman & Bell: Following the consolidation of Matheson Co. and Coleman & Bell Co., Matheson will move technical personnel from East Rutherford, N.J., to Norwood, Ohio, where Coleman & Bell had headquartered. Matheson sales and administrative personnel will remain at East Rutherford.

Publicker Industries, Inc. has purchased a fermentation alcohol plant at Gretna, La., from United Distillers of America, one of its chief competitors. As a result of the deal Publicker plans to expand the scope of its activities and widen its share of the available market for the fermentation alcohol it produces. Gretna offers cheap rail and water facilities.

Stock issues were in the news this week:

- **American Potash and Chemical Corp.** has completed sale of 30,000 shares of a new issue of \$4.75 cumulative preferred stock to a group of institutional investors. The new series B preferred stock is convertible into two shares of class B stock on or prior to Dec. 31, 1962.

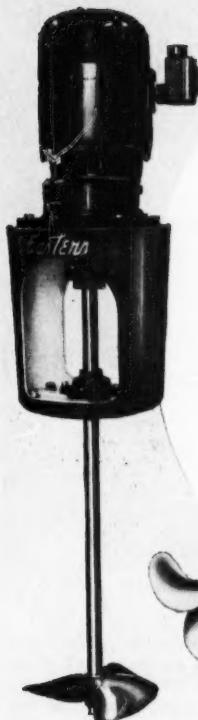
- **Filtrol Corp.** has named Blyth & Co., Inc. to manage a syndicate that will underwrite a secondary offering of 653,500 shares of its common stock. Public distribution is expected around Dec. 18.

- **Hooker Electrochemical Co.** ended a \$20 million credit this week by taking down \$10 million for working capital from six institutional investors. Hooker borrowed the first \$10 million when it set up the \$20 million loan agreement last May.

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For CPI Expansion: Blend Securities . . .



Chemical process companies, already among the top-ranking businesses from the standpoint of lofty price-earning ratios, may have the chance to do an even better job for their stockholders during future expansion programs by utilizing their high investor standing to achieve better balanced capital structures.

These encouraging tidings come from banker Roland P. Soule, who has both an "inside" and a "bird's-eye" view of this industry after a duplex career as engineer and corporate executive. He suggests that chemical companies re-examine their attitudes toward capital structure "to determine if their policies still serve the best interests of the common stockholders."

... to Cut Costs, Reduce Risks

With its past performance and future prospects attested to by the high price-earnings ratios of its stock, the chemical processing industry is in a good position to improve the "balanced proportions" of its capital structure. For some companies, this might mean increased use of common stock or retained earnings; but for the industry as a whole, this looks like a good time to make more use of long-term debt to trim the costs of continued expansion.

This is the suggestion of Roland P. Soule, formerly a consulting engineer, later vice-president of American Machine & Foundry, and now vice-president of New York's Irving Trust Co., one of the largest banks in the United States. This week, Soule was interviewed by *CHEMICAL WEEK* about some penetrating statements in his talk at the recent winter conference of the Manufacturing Chemists' Association.

New Equity Is Costly: Soule, contending that company officers often fail to recognize how retained earnings and new common stock can have "cost" to stockholders, shows that for better grade industrial companies these forms of equity capital were about 2½ times as expensive as long-term debt in 1937 and nearly 7½

times as expensive in 1951.

His yardstick to measure the cost of new capital in any form: "The effect upon net earnings per common share of whatever must be paid to attract the new capital." To the old concepts of "interest yield" as the cost of long-term debt and "dividend yield" as the cost of preferred stock capital, Soule adds the phrase "earnings yield" as the cost of new equity capital. This he defines as the ratio of earnings to market price. Viewing the cost of capital "through the eyes of the common stockholder, not of the accountant," he sees retained earnings as a stockholder subscription similar to new common stock not only in form but also in cost. He expresses these costs as annual percentages of the new funds raised.

Soule makes it clear that he is "by no means proposing that the cheapest capital is necessarily the best"; he says a company's fund-raising program should make use of the various types of capital "in such proportion as to obtain the lowest average cost for its new capital without subjecting itself to undue risks." Bonds and notes offer low cost but relatively greater risk; common stock is safest but most expensive. He points out that too much

senior capital means too much "capital leverage" on common stock earnings, which then fluctuate excessively; and also means a decline in the rating of a company's bonds and in the price-earnings ratio of its common stock.

Chemical Firms Play It Safe: In general, the CPI has not made so much use of borrowed capital "as the high quality of its earnings might seem to warrant," Soule feels. He notes that while the capital structure of all manufacturing industries in 1951 contained an average of 11½% of long-term debt and the averages for some industries ranged from 0% to 30%, the chemical industry's ratio of long-term debt to total capital was only slightly more than 10%.

However, there's wide diversity in the capital structures of chemical companies, and Soule's advice about re-examining financial policies is aimed at companies on both extremes. For twenty large, diversified chemical companies, their capital structures as of last Dec. 31 contained from 0% to 33% long-term debt, 0% to 42% preferred stock, and 41% to 100% common equity. Averages were 10.4%, 12.5%, and 77.1%, respectively.

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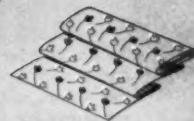
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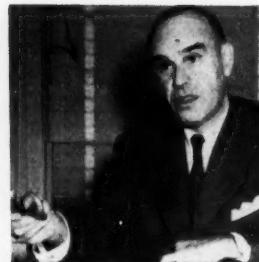
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To show how costs of various forms of capital can be compared, Soule gives the four examples in the following table, with the resulting effects on common stock earnings for imaginary ABC Co. Present earnings are taken as \$2 million/year; income tax rate at 50% leaves \$1 million net or \$1 per common share. Then, to raise \$3 million for expansion project that will gross 20%, the company could proceed:

**A**

By selling
BONDS
drawing
4% interest

B

By selling
PREFERRED STOCK
drawing
5% dividends

C

By selling
COMMON STOCK
at \$20/share
(if possible)

D

By selling
COMMON STOCK
at \$10/share
(if possible)

Outstanding shares of COMMON STOCK would number:

1,000,000

1,000,000

1,150,000

1,300,000

ANNUAL EARNINGS then will be increased by 20% of \$3 million to a total of:

\$2.6 million

\$2.6 million

\$2.6 million

\$2.6 million

(of which \$120,000 must be taken out for interest)

After paying Income Taxes at rate of 50%, Company has NET EARNINGS of:

\$1.24 million

\$1.3 million

\$1.3 million

\$1.3 million

(of which \$150,000 must be taken out for dividends)

And this remainder per share of common stock amounts to:



So PRE-TAX COST OF NEW CAPITAL would be:

4%

10%

10%

20%

ing dividends from the common stock-holders and investing such retained earnings, Soule remarks, is about equally as expensive to the stockholder as new common stock issuance in financing expansion projects—which is "not always acknowledged" by management. He considers this matter "entirely pertinent" for the chemical industry, which in recent years has raised seven or eight times as much new capital in the form of retained earnings as in new common stock.

Soule explains the equivalent pre-tax cost of retained earnings like this:

If the hypothetical ABC Co. in the above table took all of last year's net earnings after taxes, \$1 million or \$1 a share, and put that sum into a project paying off at 20%, then earnings after taxes (at 50%) would move up by \$100,000, leaving a net increase of 10¢/share. If the market's characteristic price-to-earnings ratio for ABC stock is 10 (a not uncommon case), the price of the stock probably will rise by \$1 a share. "Since the shareholders would be gaining in principal exactly what they lost in income," Soule continues, "it follows

that the 20% rate of earnings on the new project would be exactly balanced by the cost of the capital employed."

He cites recent figures on new capital to show the extent to which chemical concerns have been using retained earnings.

The twenty large chemical process companies referred to above raised more than \$2.9 billion in new funds during the five-year period ending last year, of which amount about \$1 billion was depreciation reserves. As to the rest, 18% came from long-term debt, 22% from preferred stock, 7%

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from common stock, and 53% from retained earnings.

Paying the Piper: Assuming an average tax rate of 41% (normal and surtax) over the period, pre-tax costs of that new capital averaged about 3 1/4% for borrowed capital, 6 1/2% for preferred stock, and 13 1/2% for common equity. For individual companies, these costs ranged between 2.75%—3.75% on borrowed capital, 5 1/2%—7 1/2% on preferred stock, and 11%—18% on common equity.

Thus, common equity was, in general, about twice as expensive to those companies as preferred stock during those years, and preferred stock was twice as costly as long-term debt.

Upon demonstrating that new equity capital can be regarded as having "cost" to common stockholders, and maintaining that it's impossible for a company to lead a separate life and—if it chooses—benefit at the expense of its owners, Soule comes to a final word about expansion plans.

Some managements, he cautions, may wish to raise their sights in estimating what rate of return they should demand from new projects. If such projects are to be financed largely by retained earnings or new common stock, "then a very definite minimum rate of return must be earned merely to have the common stockholders as well off as if the project had not been undertaken." Among the leading companies of the chemical industry today, the rate ranges from 10% to 20%, depending on the price-earnings ratios.

Plans Become Passé: "Capital structures, like everything else, can get out of date," Soule sums up. "At one extreme, some managements might have been drawn by the attraction of cheap senior capital into a position which, if not corrected by added common equity, may prove to be uncomfortable in the event of some serious depression in the future. At the other extreme, other managements might be clinging to an ultra-conservative position (too much reliance on common equity for new capital) that no doubt was right for some companies when the quality of their earnings was lower and when the cost advantages of senior capital were not so great.

"There is no more merit to an unnecessarily conservative capital structure than to an unnecessarily conservative engineering design. Each must have an adequate safety factor, of course, but a safety factor which is needlessly high may become—at least from the common stockholder's point of view—little more than a costly waste."

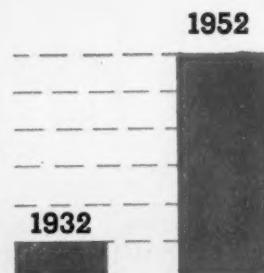
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and, IF

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No matter how you slice it, to be described as a 'growth' company is top-flight praise. Yet no single measure of growth—sales, assets, profits, or competitive position—is a yardstick in itself.

A series of tests, some of which rely on sales volume, and others which look to profits (the test of most investment analysts) as criteria of growth, can successfully sift the field, however. Any company breaking par on all scores merits commendation of 'growth', a handsome tribute to its firm management.

The Pros: With certain reservations, each of the following tests is indicative. Together they constitute a formidable barrier separating a growth company from those who also ran.

- A growth company's sales must have increased more than six fold during the past twenty years.
- Its physical volume of business

* Annual sales gain is an average determined from production figures compiled by Stanford Research Institute over the period 1929-1950 for the chemical industries.

† Return on total assets is defined as net profits after taxes divided by total assets.

should have multiplied better than four fold over the same period.

- In direct proportion to its industry's growth, its yearly manufacturing production should have increased more than a specified percentage. (In the chemical industry, where growth has been generally rapid, this annual production increase must have exceeded 9.0%.)

- Sales must have increased faster than assets, and the margin of net profits on sales should either have been maintained or increased. Percentage-wise, in the chemical and allied products industry, this rate of return on total assets, the stockholder's delight, should have exceeded 2.1%.

There is an additional, less quantitative yardstick:

- The number of new products added or dropped from a company's line over the past decade may be significant of growth, since dropping products often increases profit margins by concentrating growth in higher return items. Such a criterion does not conversely

can these Baker AMMONIUM THIOCYANATE features make your product better?

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- ✓ It is an all-synthetic product.
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*Picks up moisture. Should be kept in tightly closed containers.

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Industry after industry investigated its seven features—made comparative tests—and decided that this *all-synthetic* Ammonium Thiocyanate (Sulfocyanate) had qualities that would, in turn, give *their* process or products superiority.

Whether you buy Ammonium Thiocyanate for textiles or textile printing, for adhesives, as an inhibiting agent, or for a hundred and one other uses, you owe it to yourself to check the Sulfocyanate you may be using with Baker (all-synthetic) Thiocyanate.

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hold true, however, particularly in the basic chemical industry.

The Cons: Criteria of growth based only on sales volume may dangerously misrepresent company development, though, since doing more business on a lower profit margin could hike the ante considerably. On the other hand, to measure growth solely by the rate of return on a company's assets could produce equally misleading visions of grandeur, in that the extent of debt capitalization (interest being deducted in this test before net profits are determined) is not revealed in the percentile return figure. Taken together, most of the bugs are ironed out, and only surprisingly few companies fit the bill in all respects.

FOREIGN . . .

Nitrogen/Pakistan: Union Chimique Belge, at Daudkhel, has recently contracted to supply technical advice for the erection and initial operation of a factory to produce ammonium sulfate. Operation will eventually be handled by the Pakistan Development Corporation, and is designed to have an initial production capacity of 50 thousand tons per annum.

Uranium/South Africa: A loan has been negotiated between the Randfontein Estates Gold Mining Company and the Atomic Energy Board to finance a sulfuric acid and by-product uranium plant which is to be built at Witwatersrand.

Norsk Hydro: The Norwegian chemical manufacturer, plans a large-scale increase in production of ammonia and urea. Norsk Hydro also has in planning stages expansions of its elemental phosphorus, magnesium, and calcium carbide facilities.

Sulfur/Australia: Australia is likely to be independent of overseas supplies of sulfur for sulfuric acid manufacture by 1955 when production capacity will equal domestic demand.

Cellulose: Kohorn Engineering Co. of Manila will build a pilot plant at Ma-ao, Occidental Negros province, for full-scale pulping from bagasse pulp. Simultaneously, Cia. de Cellulose Banex, in Brazil, has acquired exclusive production rights to a new process known as Polplex, developed in Great Britain, which will make possible the extraction of cellulose from banana stalks.

I. G. Farben/Germany: The demand for conversion of I. G. Farben chemical combine shares has been requested

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Improved stability of Glycerine supply means you can count on dependable delivery of this time-tested ingredient. You can confidently build your formulations around Glycerine — without concern for emergency substitutions.

Candy manufacturers and many other food processors rely on Glycerine's humectant action to preserve freshness and maintain palatability. It is widely used as a solvent for flavoring and coloring agents. Glycerine also acts as a sweetener and blending agent. Its high viscosity imparts smoothness to mixtures, prevents graining.

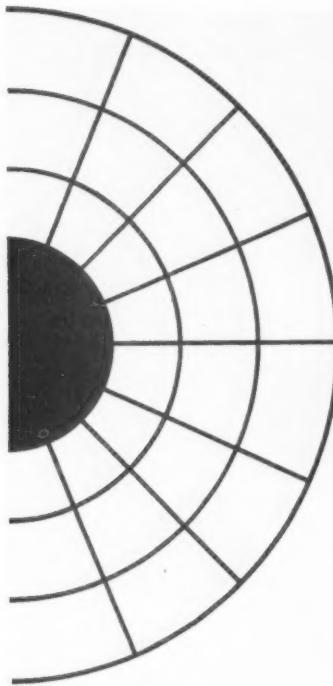
Recent research also indicates that Glycerine will lengthen shelf life of butter creams and similar perishables by suppressing fatty acid formation.

In hundreds of applications in the food field, U.S.P. Glycerine provides an unmatched balance of properties, ready acceptance, and established freedom from toxicity. Write for a copy of the booklet, "Why Glycerine for Foods?"

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by the West German Organization for the protection of stockholders. It will be a simple share-for-share exchange of stock in the new successor companies, whose finances would be permanently impaired if such a ratio was not maintained.

Snia Viscosa/Italy: Due to a loss of export sales, Snia Viscosa is reported to have decided to withdraw from the European cartel of Synthetic Fibre Manufacturers, and to follow an independent policy of price fixing. The decision, undoubtedly blessed by the British Courtauld group which controls a majority of Snia Viscosa's stock, may herald a price war on international markets.

Great Sulphur Corp./Mexico: Resulting from the drilling of a new well (begun in Sept.), Great Sulphur's reserve supply has quadrupled. Additional wells are now in the process of construction.

Ammonium Sulfate/Japan: Japanese ammonium sulphate producers, consistently underbid in international markets, have worked out a new approach to the problem. Under the scheme, low bids, even involving a loss, are submitted, and are offset by profits on domestic sales. The plan will be substituted for a formerly proposed system, shelved under pressure from the Fair Trade Commission, involving the setting up of a joint export company by Japanese ammonium sulfate manufacturers.

KEY CHANGES . . .

Malcolm P. Murdock: To vice-president and director, Ethyl Corp., New York, N.Y.

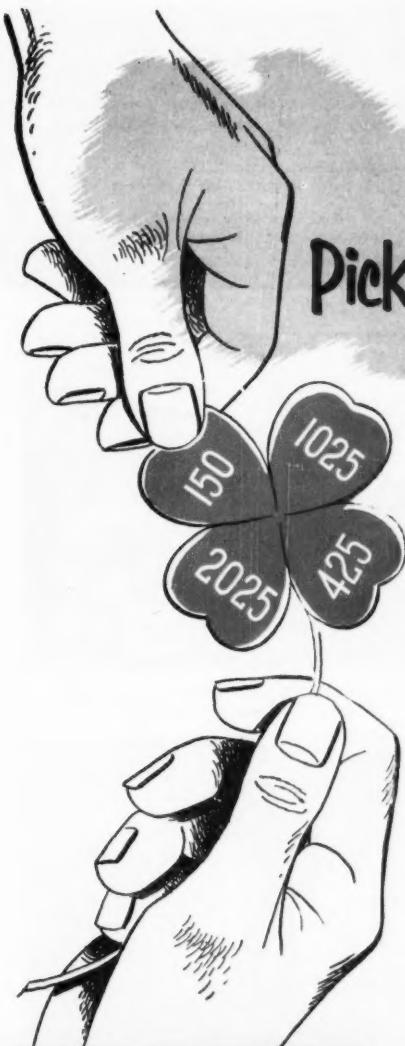
William S. Richardson: To executive vice-president and a director, The B. F. Goodrich Co., Akron, O.

Paul B. Wishart: To general manager, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Lester W. Manning: To executive vice-president, overseas operations, E. R. Squibb & Sons, New York, N.Y.

J. H. Brun: To director, research, Hooker Electrochemical Co., Niagara Falls, N.Y.

KUDOS . . .
Charles Lathrop Parsons: Secretary of the American Chemical Society, the Society's first Parsons Award for public service, for outstanding contributions to national welfare and security, Washington, D.C.



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Use 1025 or 2025 as lubricant bases in medium and heavy-duty hydraulic fluids. They are non-volatile, non-sludging, have good low-temperature properties, good water-tolerance, are non-corrosive to metals, and have very little swelling effect on rubber. They tend to inhibit the swelling action of some of the more active solvents used in hydraulic fluid formulations.

Use polypropylene glycols as rubber lubricants. Good lubricating action plus low ash content give quick, easy release from the mold and a clean burn out.

For Solvent Power

A large number of solvent applications are possible with the polypropylene glycols because they are solvents for many organic materials and are compatible with many vegetable oils, natural waxes, and resins. They are currently being used as solvents for resin-type inks.

For Coupling Action

Polypropylene glycols 1025 and 2025 are only slightly soluble in water but the lower molecular weight compounds, 150 and 425, are water-soluble and have many uses in the preparation of soluble oils.

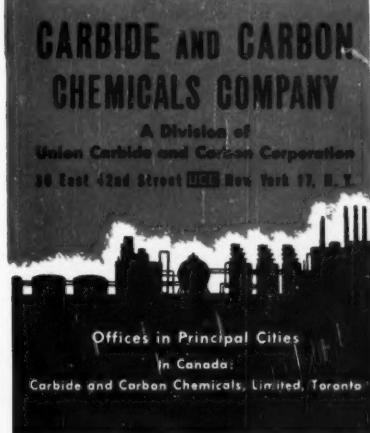
For Chemical Reactivity

The chemical reactivity of these products centers around the two hydroxyl groups. They are used to make non-ionic surface-active agents, resins, plasticizers, and non-volatile herbicidal preparations.

Availability

The polypropylene glycols are available in four closely controlled molecular weight ranges. The numbers 150, 425, 1025, and 2025, by which they are designated, represent their average molecular weights. All four products are available for immediate shipment in tank car quantities.

For samples and further information on how polypropylene glycols can best serve you, call or write our nearest office.



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FOR YOUR INFORMATION

Every month Monsanto publishes these pages of pertinent information which may be helpful to you. This issue discusses:

1. Polyester Resins
2. Maleic Anhydride

3. Santonene 80
4. Santonene No. 110 Fertilizer

Additional information on any of these subjects will be provided by any Monsanto Sales Office in response to your request by coupon or letter.

Polyester Resins Becoming Leaders In Plastic Industry

IA comer in the chemical business—the polyester resin group—is already living up to its advance billing.

Field reports from various parts of the country show that polyester resins are making their mark in the fabrication of a wide variety of products. Using this group of compounds, manufacturers can mold 37-foot sailing hulls in one operation . . . produce strong, light-weight automobile bodies . . . turn out countless other products such as luggage, pipe, outdoor signs and many more items.

These low-pressure laminating and contour molding resins are produced by copolymerizing Monsanto's styrene monomer in varied proportions with unsaturated polyester resins. They have tremendous potential when used to laminate fiber, glass cloth, paper and other materials. They also are excellent for contour-molding both large and small lay-ups, with little pressure and low heat.

Market doubles in three years

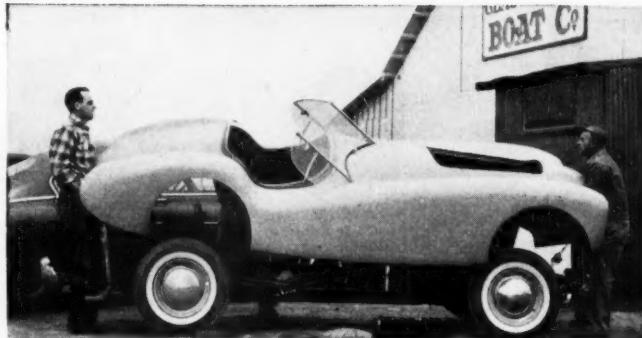
The field of application for these laminates and moldings is so promising that conservative estimates show the market doubling every three years.

Monsanto has assumed a position as a leading supplier of raw materials used in polyester resins.

From this one company you can obtain the maleic or phthalic anhydride which reacts with a polyalcohol. Styrene monomer for copolymerization is available from Monsanto's new plant at Texas City.

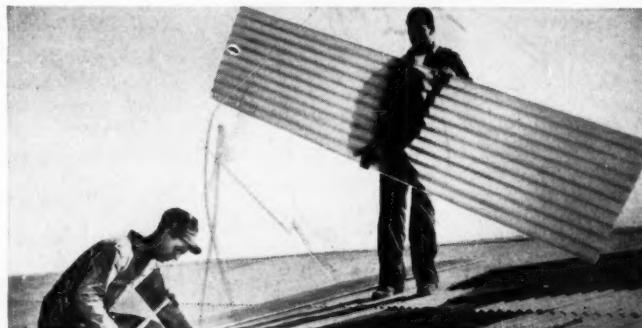
Because it furnishes these three products Monsanto is being selected by a wide number of manufacturers as headquarters for raw materials used in polyester resins.

For more information, send in the coupon on the opposite page.

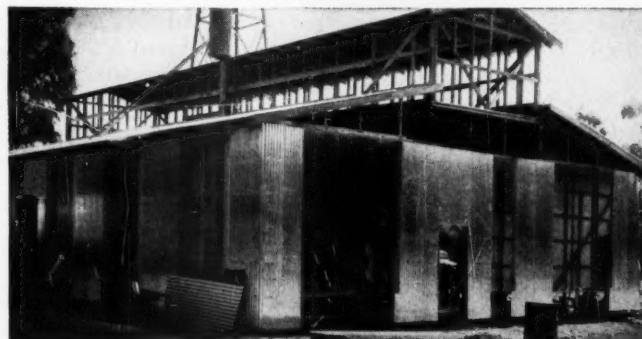


AUTOMOBILE BODIES of light-weight, high-strength polyester resin are now being tested.

UNITED STATES RUBBER COMPANY



ROOFING for industrial buildings can now be made from polyester resins made with Monsanto's styrene monomer.



INDUSTRIAL BUILDINGS use polyester resin panels for exterior covering because they are weather-resistant, translucent and inexpensive.

Maleic Anhydride Briquettes Available

2 Chemical processors are now using maleic anhydride in briquette form (a Monsanto exclusive) to increase operating efficiency.

Processors report that these briquettes offer several advantages. Their compact size—about one and three-quarter inches in length, plus a highly uniform shape, makes the briquettes ideal for fast weighing and handling.

The briquette shape is growing in user popularity for another reason, too—dusting is minimized with this form of maleic anhydride. In addition, the convenient 80-pound bag the briquettes are packed in can be easily palletized. This simplifies material-handling problems inside the plant.

Caking is also virtually eliminated with this form of maleic, and moisture pickup minimized.

3

Announcing . . . The New and Improved **SANTOMERSE 80**

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- Faster Wetting
- Greater Sudsing

All these advantages go to work for you when you put the new Santomerse 80 in your formulation. Santomerse 80 provides you with a synthetic detergent in concentrated form. It is recommended for use wherever excellent sudsing and wetting and optimum detergency are required. For details use the coupon.

SEND LITERATURE:

- Booklet, "Build Bigger Business with Better Products Made from Styrene Monomer."

SEND INFORMATION:

- Maleic Anhydride
- Phthalic Anhydride
- New Santomerse 80
- Santomerse No. 1



Fertilizer in bag on right has Santomerse No. 1 (spray-dried) added. Bag on left does not include Santomerse. Note difference in caking.

James E. Seymour, Chief Chemist, Illinois Farm Supply Company, adding Santomerse No. 1 (spray-dried) to a test batch of fertilizer.

Wetting Agent Aids New-Type Fertilizer

4 The development of a new-type fertilizer was announced at a recent meeting of the American Farm Research Association by Mr. James E. Seymour, Chief Chemist for the Illinois Farm Supply Company.

According to Mr. Seymour, the-new plant food, called "Gro-Flo," flows easily through grain drills, fertilizer attachments and other types of applicators because of its uniform particle size. It also exhibits unusually good stability in storage.

During his talk, Mr. Seymour described the experiments which led to the discovery that a faster and more complete reaction of mixed fertilizer ingredients would result through the use of minute amounts of surface-active agents. The result, he said, is much shorter curing time and a non-hardening, free-flowing product of uniformly high analysis.

The surface-active agent used by the Illinois Farm Supply, Mr. Seymour said, is Santomerse No. 1, an all-purpose wetting agent manufactured by Monsanto Chemical Company.

The specific grade of Santomerse No. 1 used is light in density and spray-dried. This all-purpose wetting agent is of the anionic type and is widely used as an emulsifier, dispersant and wetting agent in the textile, dairy and industrial cleaning fields.

Manufacturers of fertilizers find the use of Santomerse has several advantages. It cuts costly aging time and permits a faster rate of bagging of finished product. It reduces the tendency of mixed goods to set up and harden in bags during long periods of storage. Moreover, the finished product retains an improved texture, free of hard lumps which formerly caused clogging of applicators. For complete details on this new application for wetting agents, send in the attached coupon.

• • • • •

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RESEARCH

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✓ cellulose acetate

✓ isocyanate

✓ phenolic

✓ styrene

✓ polyurethane

✓ vinyl

Made by

Strux Corp.

Lockheed Aircraft*
Nopco Chemical Co.
American Latex Products

General Electric Co.
Westinghouse Electric**

Dow Chemical Co.

Armour and Co.

Interchemical Corp.†
U. S. Rubber Co.
Elastomer Chemical Corp.‡

Under the name

Strux (CCA)

Lockfoam
Lockfoam
Lockfoam

G-E Phenolic Foam
Insulfoam

Styrofoam

Armofoam

Foam Plastisol
Ensolute

* Licenses Nopco and American Latex Products.

† Supplies product in paste form for subsequent expansion.

** Not in commercial production yet.

‡ Makes no foams; supplies plastisols and licenses foaming process.

The debut of Lockheed Aircraft Corp.'s Lockfoam, newest of the expanded plastics, disrupts the status quo in a field that has experienced many such disruptions in the recent past. As a matter of fact, new additions have all but completely changed the face of the foamed plastics business in the past three or four years. New uses and new polymers are responsible for the transformation.

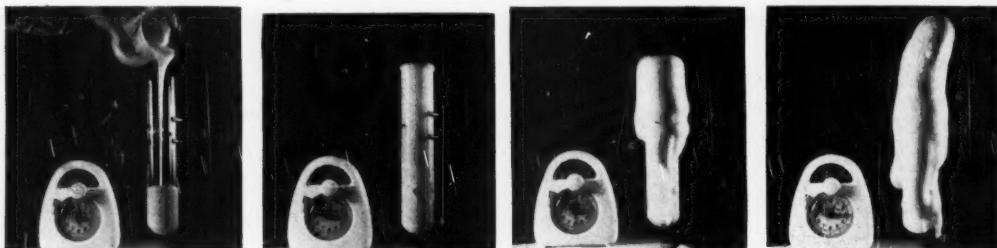
But regardless of their differences, expanded plastics all share certain fundamental attributes: In general they're strong, light, buoyant, water-resistant, easy to cut and fabricate,

good thermal insulators and resistant to attack by bacteria, rot and fungus. And, as you might expect, they share applications: flotation equipment, thermal insulation of all types, light-weight structural reinforcement in aircraft, shock absorbers, advertising display material are examples.

In both respects, Lockfoam runs true to form. But chemically it differs sharply from most of its counterparts. The plastic is a polyisocyanate polymer produced by a cross-linking polymerization of an isocyanate and an alkyd resin. Carbon dioxide, liberated during the reaction, foams the mass.

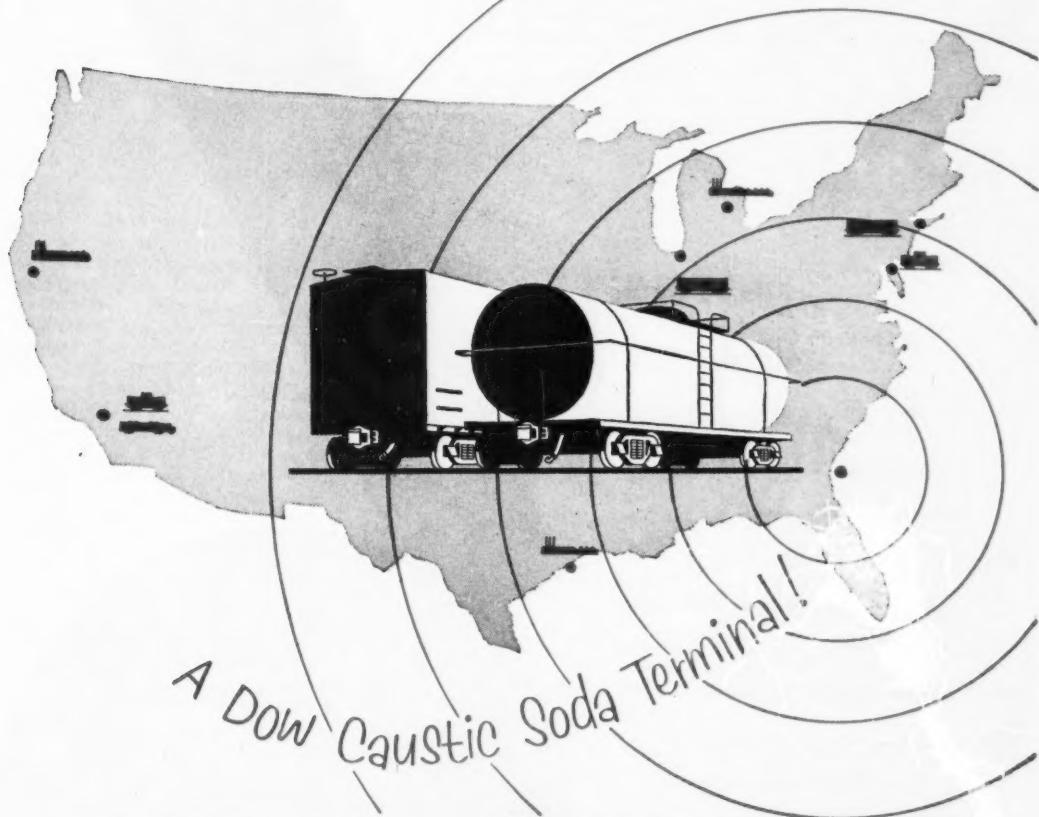
Present applications for Lockfoam are limited almost exclusively to the aircraft industry. It's used to fill vital spaces in aircraft parts, provides light-weight structural reinforcement. In its liquid state, Lockfoam may be poured or sucked into cavities. Subsequently it foams up to fill the cavity, adheres nicely to wood, metals, fabrics and glass fibers without aid of any kind.

Lockheed researchers have been on the trail of Lockfoam since 1948. Earlier this year, Lockheed licensed American Latex Products Corp. (Hawthorne, Calif.) and Nopco Chemical Co. (Harrison, N.J.) to produce the



LOCKFOAM IN THE LABORATORY: Fast-foaming filler for supersonic cavities.

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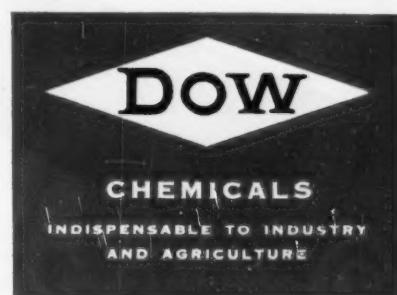
In the chemical industry, prompt caustic soda delivery is of the greatest importance in keeping production steady. For this reason Dow maintains an outstanding network of distribution facilities. In addition to Dow's caustic soda solution, solid, flake and ground flake terminal in Charleston, South Carolina—Dow operates caustic soda plants in Midland, Michigan; Freeport, Texas and Pittsburgh,

California. Dow caustic soda solution is also shipped from bulk tank terminals in Los Angeles, California and Carteret, New Jersey. Caustic soda solid, flake and ground flake are also shipped from terminals in Port Newark, New Jersey and Chicago, Illinois. All of these distribution points play an important part in providing the chemical industry with the superior service it requires.

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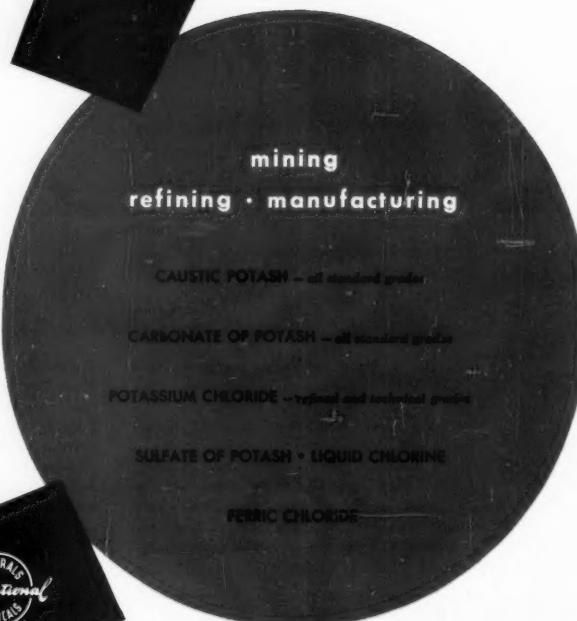
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Chemical Week • December 20, 1952

RESEARCH

plastic. American Latex is now in production.

Nopco, on the other hand, is in the pilot stage but still researching for new and broader applications. Hopeful possibilities along this line are packaging insulation, fireproof door material, electrical and thermal insulation for building use, refrigeration insulation, and acoustic applications. Cost of the isocyanate resin would now appear to bar several of these potential uses. Well aware of this mottled economic outlook, Nopco is not hitching all its foamed plastics hopes to the isocyanate polymer. It's also investigating foamed phenolics.

Phenolics, unlike isocyanates, are well-established members of the foamed fraternity. General Electric Co. has had its G-E Phenolic Foam for more than a decade. Like Lockfast, the G-E phenolic may be foamed in place, forms a brittle, thermosetting, non-flammable expanded plastic. Unlike Lockfast, G-E Phenolic Foam has made no inroads in aircraft applications, is used as thermal insulation, packaging material and in flotation equipment.

Also a phenolic is Westinghouse's Insulfoam. Early development with the resin pointed to insulating applications as most promising. The plastic is not yet in commercial production, but the chances are that when it does bow in it will be fitted for other jobs as well. Westinghouse is more interested in its buoyancy characteristics, is now working with the Navy and Douglas Aircraft to develop the material.

Polystyrene, basis of Dow Chemical Co.'s Styrofoam, claims the distinction of being the most important (tonnage-wise) chemical structure in foamed plastics. Mainly on the strength of its low thermal conductivity, structural strength and light weight, Styrofoam is finding wide use as low-temperature insulation in refrigerated structures ranging from cold storage warehouses to home freezers. Dow recommends the material for insulation in masonry construction, is using it as the core of concrete slabs in a Dow warehouse now under construction at Midland, Mich.

New Styrofoam developments are a self-extinguishing formulation and a high-density (6 to 7 pounds per cubic foot) product.

Foamed cellulose acetate goes by the name Strux, is usually referred to as cellular cellulose acetate (CCA). It's manufactured under license from the Du Pont Co. by a flash-vaporization process: A mix of cellulose acetate flake, barium sulfate, burned

glass fibers and an alcohol-acetone solvent is heated under pressure and extruded. As the pressure is released the volatile solvent expands the acetate into a light cellular mass. Barium sulfate particles serve as bubble-forming nuclei while glass fibers increase structural strength of the finished product.

Applications for cellular cellulose acetate are in aircraft production (as reinforcement for control surfaces and filler blocks under fuel cells); boat building (as buoyant filler material and structural members in fiber glass small boats); arctic housing units (as structural material in the form of laminated glass fiber sandwiches); and Navy life floats.

New Look for Vinyls: A foaming technique, developed recently by Elastomer Chemical brings a new look to the expanded vinyls. Briefly, the method is a comparatively low-temperature, low-pressure process for expanding vinyl plastisol formulations with an inert gas. Just-completed research has succeeded in putting the process on a continuous basis, appreciably reducing curing time.

Finished product is highly flexible, light, resistant to tearing, abrasion, aging and moisture. Foamed vinyl plastisols prepared in this manner more closely resemble foam rubber than conventional foamed plastics. And, as a matter of fact, Elastomer Chemical Corp. claims that the foamed plastisol competes with related rubber products more than it does with expanded plastics. Elastomer Chemical does not make the end product, does license the process and supply the special vinyl plastisols it requires.

More familiar techniques, which make use of chemical foaming agents or higher pressures, account for the bulk of expanded vinyls currently available. United States Rubber Co.'s Ensolite and Interchemical Corp.'s Foam Plastisol are representative members of this group. Uses for the foamed vinyls generally hinge on their flexibility, buoyancy and shock-absorbing qualities. Protective body pads for athletes is, today, an up-and-coming use serviced by products like Dura Flex Co.'s (Santa Monica, Calif.) Vinylaire.

A novel and ingenious new use pioneered by Interchemical Corp. for its foamed polyvinyl chloride is as a printing medium for three-dimensional decoration of fabrics and paper.

Hybrid plastics like U.S. Rubber's Expanded Royalite, which is a blend of what the company calls "synthetic rubber and thermoplastic resins" be-

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RESEARCH

long in the expanded plastics picture. But the circle of distinct resin types, begun with Lockfoam is completed by the polyurethanes (also derived from isocyanates) represented by Armour and Co.'s Armofoam. A foamed-in-place product, expanded by the liberation of carbon dioxide in an exo-

thermic reaction, Armofoam is limited by cost considerations to selective applications in aircraft, electronic and electrical equipment manufacture. But continuing research here, as in other facets of the industry, foreshadows further technological improvements, broader fields of application.



KESTERSON (left) and HENDRICKSON: Squeezing for by-products.

Pay-Off in the Peel

Several essential oils and experimental drugs account for the best part of the citrus industry's chemical contribution. But the possibilities have hardly been exhausted. Florida Citrus Experiment Station researchers J. W. Kesterson and R. Hendrickson have tapped the chemical potential of citrus peel for a series of new azo dyes. Samples of the dyes, produced in the Experiment Station's Lake Alfred (Fla.) laboratories, are now getting the once-over from a number of interested firms.

According to Kesterson and Hendrickson, their discoveries are "acid azo dyes produced by coupling various diazo solutions with naringin and hesperidin," flavonone glucosides extracted from citrus peel. Bright, light-fast yellow-red colors were formed from the reaction of the glucosides with the diazos of sulfanilic acid, *p*-nitroaniline, etc. Application of the water-soluble dyes is limited, say the researchers, to wool, silk, and leather. But "a new type of wood stain" offers another interesting, if uncertain, future outlet.

Import of the Lake Alfred team's work, now two years old, has high appeal for Florida citrus growers. By-product processing has become an integral part of the citrus industry. But recovery has been restricted for the most part, to low-cost products—citrus-pulp cattle feed, citrus molasses, peel and seed oil, pectin, bland syrup, etc. Extraction of more expensive dye intermediates, for example, would be a happy prospect.

In times of surplus, production of an economically attractive by-product could funnel considerable quantities of fruit off the market. And the removal of the bitter glucosides would upgrade citrus molasses, make it more palatable as cattle feed at no loss of nutritional value. It's estimated that a ton of citrus molasses would yield about 100 pounds of glucosides.

Commercialization of Kesterson and Hendrickson's efforts probably won't lag very far behind tangible industrial interest in the dyes—if and when such interest materializes. Florida citrus processors, working hand-in-glove with the state's Citrus Commission and

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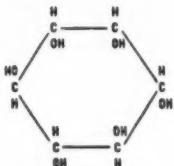
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RESEARCH

the growers' Citrus Mutual, can be counted on not to pass up any revenue-producing aid to stabilizing the industry.

Thin Slice: A broad selection of transmission-type interference filters for isolating spectral bands in the 340 to 800 millimicron range is newly available from Bausch & Lomb Optical Co. (Rochester, N.Y.). Valuable in colorimetry, photomicrography, flame photometry and color densitometry, the filters consist of two partially transmitting films of silver separated by a spacer film of non-absorbing material, all deposited on a small glass plate under high vacuum. Distance between silver films determines wavelength rating of filter. According to Bausch & Lomb, films as thin as four-millionths of an inch are now obtainable by vacuum deposition.

Purity Boost: Smith-New York Co., Inc. (Freeport, N.Y.) has launched production of a new high-purity grade of *p*-toluenesulfonic acid. Chief use for the acid is catalyst in esterifications. Promising sidelights: catalyst in acetylations, alkylations, dehydrations, isomerizations and other organic reactions. Under "other uses," Smith-New York lists: preparation of tanning agents; dispersing agent for chloroprene-polyene latices; stabilizer for vinyl chloride polymer; and solvent for fine subdivision of phthalocyanine.

Rule Change: Business expenses incurred for the development of products or processes to enable a firm to bid on government work may be considered renegotiable. That's the import of new regulations just out of Defense Department's renegotiation board. Included under the new rules is basic research not related to current business. But the cost of research and development for reconversion purposes and post-emergency business will not be allowed.

Add Ten: Ten newcomers have taken their places on the list of more than 3,500 organic chemicals available from Distillation Products Industries (division of Eastman Kodak Co.). Included in the group are: benzenephosphorous acid; betaine; 2,2'-diethyl-dihexylamine; 2-N-methylaminooethanol; and 2-(*o*-hydroxyphenyl)-benzoxazole, an interesting new reagent for the gravimetric determination of cadmium.

Fitting Reminder: The memory of Vladimir N. Ipatieff, world-famous authority on catalysis who died on Nov. 29, has been honored by the establish-

ment of a \$25,000-a-year research professorship at Northwestern University. The grant is sponsored by Universal Oil Products Co. (Des Plaines, Ill.), which employed Ipatieff as director of its chemical research. The Russian-born organic chemist, called "the father of modern catalysis," was denounced in 1936 by the Soviet Union as a "hireling of the capitalists" for his refusal to return to the U.S.S.R.

Sulfa Improver: A British patent (671,034) covering ascorbates of N-heterocyclic sulfonilamides, has recently been issued to New York consultant Simon L. Ruskin. The ascorbates are valuable in the treatment of open wounds, cause less irritation on injection than conventional therapeutic sulfonilamides.

Out for Blood: Thermocouples may soon take the play away from the familiar clinical thermometer in blood donation stations. In Philadelphia, recently, an instrument containing two thermocouples was tested as a means of speeding up temperature-taking during a Red Cross blood donor visit. The device, tagged "thermotron" was developed by Minneapolis-Honeywell, is reported to be "twice as accurate as a doctor's thermometer and up to 60 times as fast."

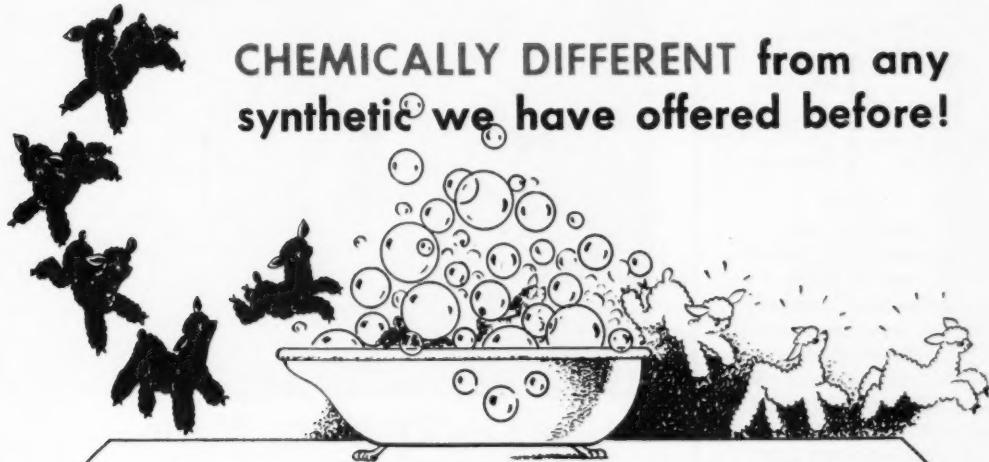
Ether Quartet: Four glycol ethers are new product entries from Ansul Chemical Co. They are: glycol ether 121, (ethylene glycol dimethyl ether), a solvent for cellulose esters, inert to sodium and miscible in all proportions with water and hydrocarbons; glycol ether 141 (diethylene glycol dimethyl ether), promising reaction medium by dint of its inertness to sodium; glycol ether 161 (triethylene glycol dimethyl ether), solvent for acetylene, sulfur dioxide, methyl chloride; and glycol ether 181 (tetraethylene glycol dimethyl ether), a high-boiling solvent used as an additive to reduce auto-ignition temperature of diesel fuel.

Nothing to Hide: Transparent cellulose acetate butyrate pipe and fittings for laboratory and pilot-plant use are now available from Elmer E. Mills Corp. (Chicago, Ill.). The pipe, in sizes ranging from $\frac{1}{2}$ inch to 4 inches, is easily fabricated, resistant to attack by most corrosive reagents.

Rat Bane: The rodenticidal potencies of 4-aminopteroxy glutamic acid are pointed up in the results of research by American Cyanamid Co. The compound is the basis of a recently patented (U.S. 2,575,168) rodenticide preparation.

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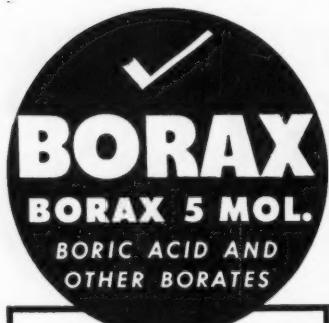


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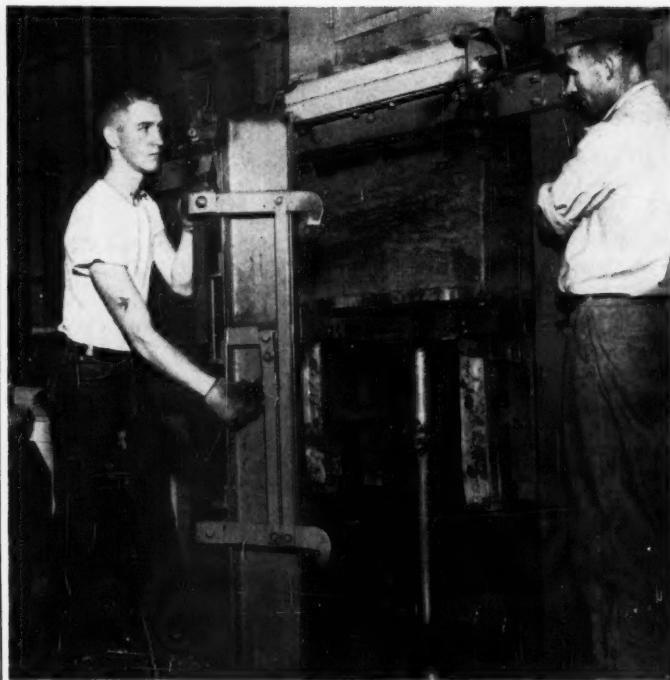
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Looking for Profits in Waste

THE SEARCH FOR MARKETABLE products from sawdust, bark and wood chips is a never-ending one. Latest development along those lines is the news that Weyerhaeuser Timber Co.'s plant at Snoqualmie Falls, Wash. is now in commercial production. The plant which started limited production early this summer transforms waste into Silvaceel wood fibers. Largest single use for the fiber at present is in

oil well drilling. But it is said to be resistant to decay, mold, fungus and moisture, also fire retardant and is finding its way into homes as an insulator. Untapped prospects include use in industrial filters. As operator (above) compacts the material into bales for easy handling, Robert D. Pauley, in charge of special products and Clark C. Heritage, director of development, plot the future of Silvaceel.



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Ethylene Glycol — For use as a permanent-type antifreeze; a heat transfer medium; a raw material in the manufacture of low-freezing dynamite; a starting material for the production of synthetic fibers and alkyd resins; a plasticizer; a constituent of hydraulic fluids; and a general solvent and chemical intermediate.

Ethylene Dichloride — For use as an ingredient of tetraethyl lead fluid; a solvent for fats, oils, and waxes; a metal degreaser; a spotting agent for textile cleaning; a chemical intermediate for use in resin manufacture and in other processes.

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Monoethanolamine — For use as a gas scrubbing agent for recovery of hydrogen sulfide and carbon dioxide, and as a chemical intermediate in the manufacture of various surface active agents, rubber chemicals, and other materials, and as an agent in the manufacture of antibiotics.

Diethanolamine — For use as an intermediate in the manufacture of surface active agents used in textile specialties, herbicides, petroleum demulsifiers, etc.; as a gas scrubber in refinery operations; a rubber chemicals intermediate.

Triethanolamine — For use as an intermediate in manufacture of surface active agents used in textile specialties, waxes and polishes, herbicides, petroleum demulsifiers, toilet goods, cement additives, cutting oils, etc.; a rubber chemicals intermediate.

Nonyl Phenol* — For use as an anionic and nonionic surface active agent intermediate; a starting material for the manufacture of lubricating oil additives, stabilizers, petroleum demulsifiers, oil-soluble phenolic resins and plasticizers.

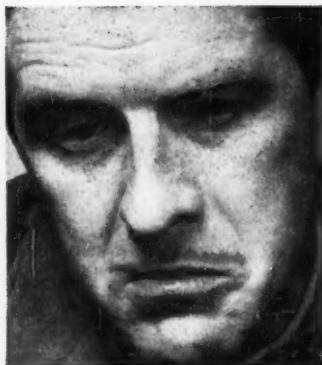
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*FRUSTROSITY is that frustrated condition a man gets into when his problem is Viscosity Determination or Control and he hasn't asked BROOKFIELD.

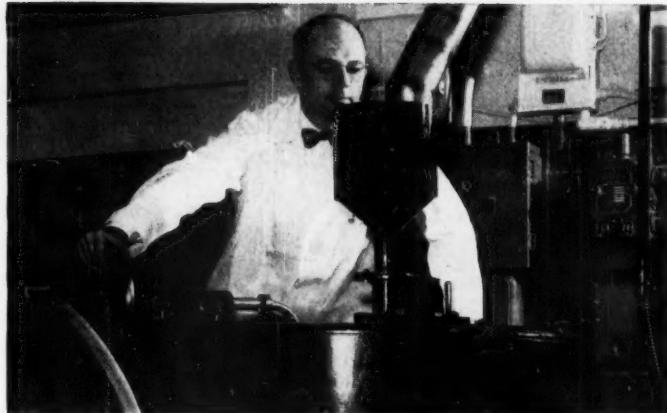
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PRODUCTION



SHARPLES' COUPERUS: Modifies process for centrifuging in fat separation . . .

Two Routes to

Rendering:

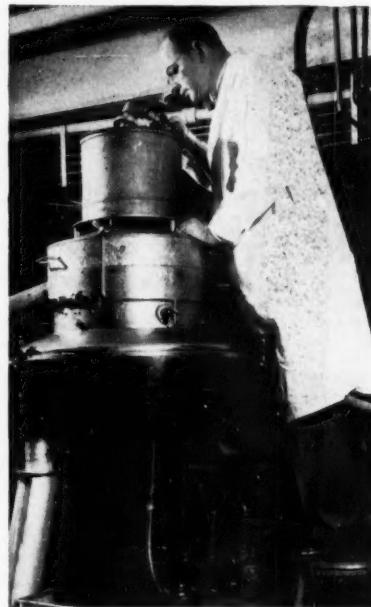
Shock Blast,

Flash Heat

A bomb that fell on a British Glue and Chemical, Ltd. rendering plant in England during the last war proved to be a mixed blessing: It reduced the plant to rubble but gave the firm's technical director his long-sought chance to revamp the entire rendering process. Dubbed the Chayen (pronounced "chain") process after him, the process was unveiled for the first time on the North American continent last week. The news comes hot on the heels of the disclosure* of another new rendering process developed by Kingam & Co. (Indianapolis).

The Chayen process made its bow in the new plant of W. R. Harris, Ltd. in Toronto where it will be used to render animal fats. But The Sharples Corp., which obtained rights to the process on this continent, sees no reason why it can't be used on other fats and oils. It is experimenting, for instance, with the process for the recovery of herring oil and cod liver oil.

* In Food Engineering, Nov. '52.



. . . and final polishing.

Future development work will center around the extraction of vegetable seed oils. Sharples, however, is quick to point out that each new application will entail modifications of the basic technique and it is chary about making claims until the process has been tested in each case.

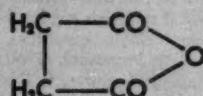
Shock Blasting: The usual method of fat rendering is to rupture the tissue by applying heat. The Chayen process by-passes heat, accomplishes the rupture by shock waves. Bone is chopped, crushed and fed (with about seven

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PRODUCTION

parts water to one part bone) to the impulse renderer which is the clue to the whole process.

There, mechanical impulses set up shock waves in the water to blast the fat from the bone. The material then goes through a series of separations steps (by centrifuge) to produce a high-quality fat and a bone residue high in proteins.

Big selling point for the Chayen process is that it uses no heat, thus cuts costs and does not decompose or darken the fat. In fact, Sharples reports that the process has turned out such a high-grade fat in England that the country has added two new tallow grades.

Cold processing, moreover, frees the fat without any increase in the free fatty acid content. Bone residue runs about 35% protein, 45% tricalcium phosphate, and can be used in glue manufacture, as a fertilizer or a feed supplement. Electric power consumption for the process is just about double that for conventional heat rendering, but, says Sharples, that's just a minor cost item. The big cost factor is the heat requirement, and that's said to be about one-third that for the other process.

Speedy Heat: Kingam and Co. also figured that there was room for improvement in methods of rendering fat. Why not, said researchers, break down the fatty tissue into fat, water and solids that could be separated by centrifuging? Earlier workers had tried it but had wound up with an emulsion that could not be broken by centrifuges.

Kingam, like Chayen, solved the problem. But whereas Chayen did it with shock waves, Kingam's process consists of grinding the fatty tissue to a fluid mass, pumping it through a continuous heat exchanger to effect rapid heat rupture. Presently, Kingam is using the process in a "prototype" plant, but claims it has been proved in full-scale processing.

Main claims made by Kingam for its process are that it has cut: processing time from 3 1/4 hours to 15 seconds, processing area to one-eighth, the power costs from \$3 a ton to 15¢ a ton.

And in addition, the firm reports a higher-grade product and higher yields. Kingam is currently negotiating with an equipment manufacturer, plans to market a package plant employing the process.

Late Take: Like Kingam, Sharples plans to turn out a package plant. It will, of course, represent a tidy outlet for the company's centrifuges and centrifugal processes.

Sharples got interested in the idea early this year when a representative came back from a meeting with a glowing report on the English process. Sharples President G. J. Keady was so impressed that he flew to England to make the arrangements with British Glue and Chemical.

Arrangements were concluded this summer, and the Sharples technical team, under the direction of P. G. Couperis, took over to push development.

Couperis has modified the process slightly to accommodate Sharples centrifuging techniques. And he's currently in the middle of a full-scale development program aimed at broadening the field of application for Chayen's process.

Underground Fire

Chances are you won't be able to get a detailed report on it for several months, but the Bureau of Mines and Alabama Power have just concluded the third—and so far the biggest—phase of their underground coal gasification test at Gorgas, Ala. What was probably the highlight of this most recent series came during the last week when they successfully produced a synthesis gas.

James Elder, who heads up the project for the Bureau of Mines, makes it plain that no general conclusions can be drawn from the experiments until the data have been intensively studied.

There's certainly no doubt, however, but that he and his staff are enthusiastic about results. Elder says it's the first time in the U.S.—probably in the world—that synthesis gas has been made in appreciable quantities by burning coal underground. The unknown quantity, of course, is Russia, where underground gasification experiments have been under way for over twenty years.

The synthesis gas was formed by passing 3,600 cu. ft. of oxygen an hour over the burning coal. All told, the tests consumed five railroad tank cars of oxygen. The gas ran higher in carbon dioxide content than the best synthesis gas, also had a lower heat content. Elder says that enriching the synthesis gas should pose no special problem.

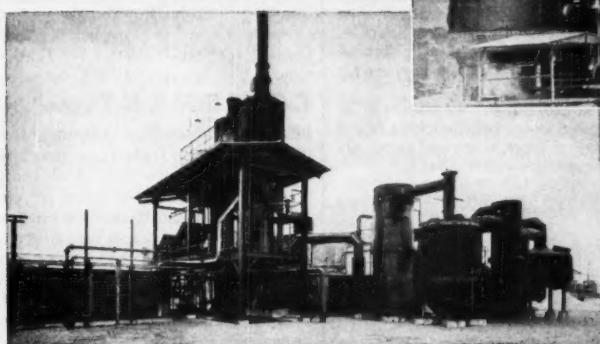
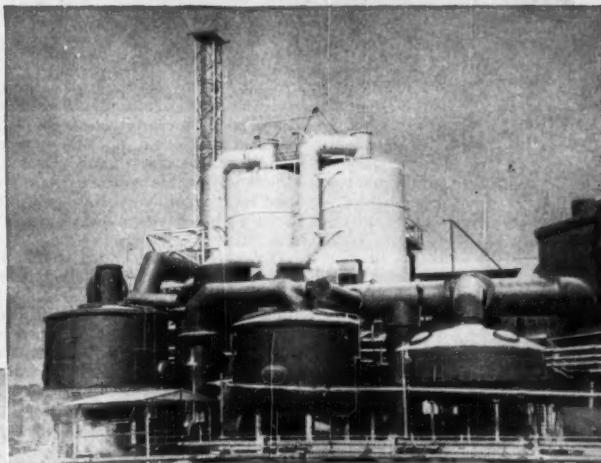
Firing with Current: One of the main goals of the latest set of tests was to try the electro-linking process of carbonizing the coal. In the first two series, passages were dug along the coal seam and the coal fired by small thermal bombs dropped down the exhaust shafts after both ends had been sealed.

How much sulfuric acid do you need?

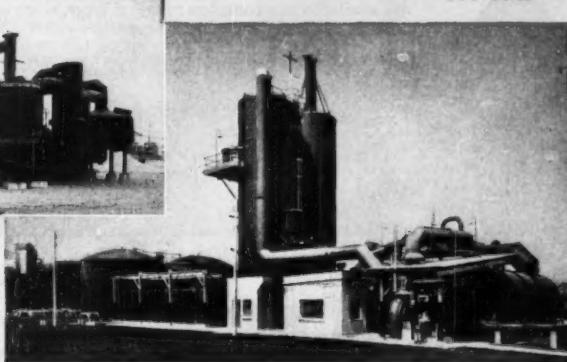


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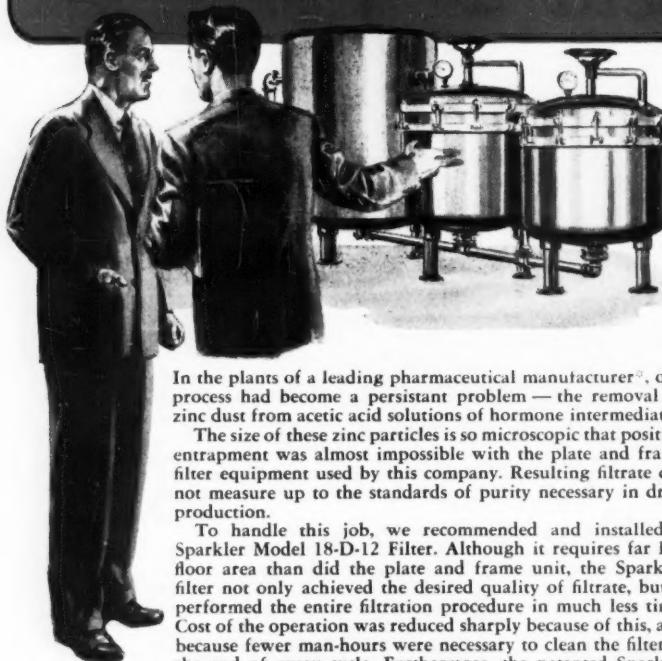
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In the plants of a leading pharmaceutical manufacturer¹, one process had become a persistent problem — the removal of zinc dust from acetic acid solutions of hormone intermediates.

The size of these zinc particles is so microscopic that positive entrapment was almost impossible with the plate and frame filter equipment used by this company. Resulting filtrate did not measure up to the standards of purity necessary in drug production.

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Using the electro-linking method (which was first tried out by Eric Sapuu at Hume, Mo. under the sponsorship of Sinclair Coal and the Missouri School of Mines), engineers placed metal electrodes into 200-ft. holes about 152 ft. apart. A heavy current was sent through the electrodes for 20 hours. The process was repeated in another area where the current was fed for 60 hours, then in a third area for 150 hours.

As the current passes through the electrodes the coal in the immediate area starts to carbonize along the lines of current flowing between the two electrodes. The carbonized fields—roughly in the form of an ellipse—join up and the coal is gasified. Since the method eliminates the need for underground passages and other preparations, it pares the cost of the operation considerably.

The experiments at Gorgas have attracted world-wide attention. Last February a group of scientists from England, France, Belgium and Germany visited the site. On learning of the completion of the third phase Belgium's Albert Demaele, one of the recognized experts on coal gasification, flew back to Gorgas. Said he: "It is now only a matter of technology. We now know the principle is workable . . . not against the laws of nature."

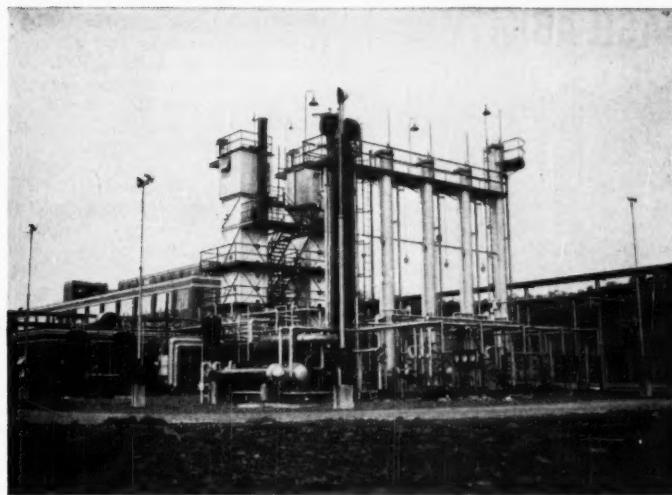
Whether the project will ever become economically feasible is another question entirely. But there's general agreement that the prize is more than worth the effort.

EQUIPMENT . . .

Blinding Stopper: Hewitt-Robins, Inc. (Stamford, Conn.) claims a new answer to the old problem of clogging or blinding encountered when screening wet materials. It uses an electric current fed to the screen by short insulated cables attached to copper bars under the screen cloth and in direct contact with it. The new arrangement, says Hewitt-Robins, is a decided improvement over the old method of passing current through steel or copper skirtboards along the sides of the screen and above the cloth, since it eliminates power losses. It adds that the worn cloth can be easily replaced.

Hewitt-Robins has added another string to its bow through introduction of a new screen designed to handle bigger loads than its other models. Tagged Robins Vibrex, Model MS, the bigger screen has a heavier yoke, is mounted on coil springs instead of the firm's usual leaf springs. It operates on the same principle as do smaller models.

Girdler Process News



Girdler HYGIRTOL* Plant at U.S. Bureau of Mines Synthetic Liquid Fuels Plant supplies both pure hydrogen and various mixtures of synthesis gas.

Complete engineering-construction service assures a job "well done"

FOR PROCESS PLANTS in the chemical, natural gas, and petroleum industries, Girdler assumes unit responsibility for design, process engineering, and construction. This saves you engineering manhours and time. Most important, it assures proper co-ordination of the whole project and successful results.

Girdler has broad experience in handling complete "process packages" covering design and construction of process plants involving very high operating pressures,

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*HYGIRTOL is a trade mark of The Girdler Corp.

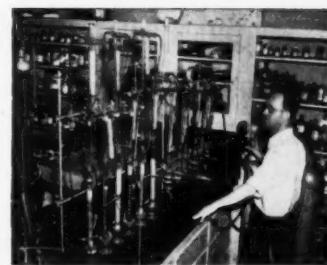
The **GIRDLER** Corporation

LOUISVILLE 1, KENTUCKY
Gas Processes Division

GAS PROCESSES DIVISION: Designers, Engineers, and Constructors for the Petroleum and Chemical Industries

VOTATOR DIVISION: Processing Apparatus for the Food and Chemical Industries

THERMEX DIVISION: Industrial High Frequency Dielectric Heating Apparatus



PROCESS RESEARCH—Girdler's research and development department is well equipped to assist with all types of process problems. A technical staff is available for consultation, and Girdler's research group can be employed on special problems at reasonable cost.



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Want More Information?

Girdler's Gas Processes Division designs and builds plants for the production, purification, or utilization of chemical process gases; purification of liquid or gaseous hydrocarbons, manufacture of organic compounds. Write for Booklet G-35. The Girdler Corporation, Gas Processes Division, Louisville 1, Kentucky. District Offices New York, Tulsa, San Francisco. In Canada: Girdler Corporation of Canada Limited, Toronto.



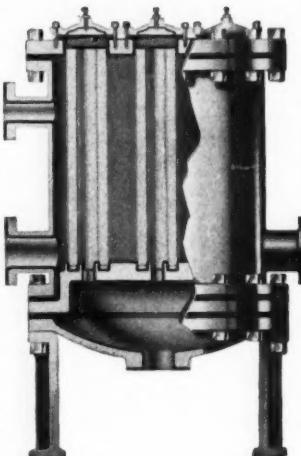
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the filters with BACKWASH-ABILITY

IN LINED FILTERS TOO
COLLECTED SOLIDS ARE PURGED
QUICKLY, EASILY, THOROUGHLY

- Backwash without disassembly or removal of any part. Filter is on stream again in a few minutes.
- High velocity backwash with filtered fluid forced by surge tank air head insures complete purging of filter elements and shell.
- Adams Poro-Stone or Poro-Carbon filter elements, impervious to corrosion at any pH, may be used with or without filter aid.
- Choice of natural rubber, synthetic or lead linings that cannot be attacked by nor contaminate any industrial acid or alkali.

Bulletin 430 shows flow diagrams. Write for a copy.



R. P. ADAMS CO., INC. 240 PARK DRIVE
BUFFALO 17, N. Y.

The Unasked Questions

IF you are a user or possible user of any of the chemicals we manufacture, there may be questions in your mind. Write to us. Should the answers not be immediately available, our organization will study and work on your inquiries until the correct answers are found. Naturally every inquiry is considered strictly confidential.

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ELECTRO-CHEMICAL COMPANY

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NIAGARA FALLS, NEW YORK
New York Office:
19 RECTOR STREET, NEW YORK 6, N. Y.

PRODUCTION . . .

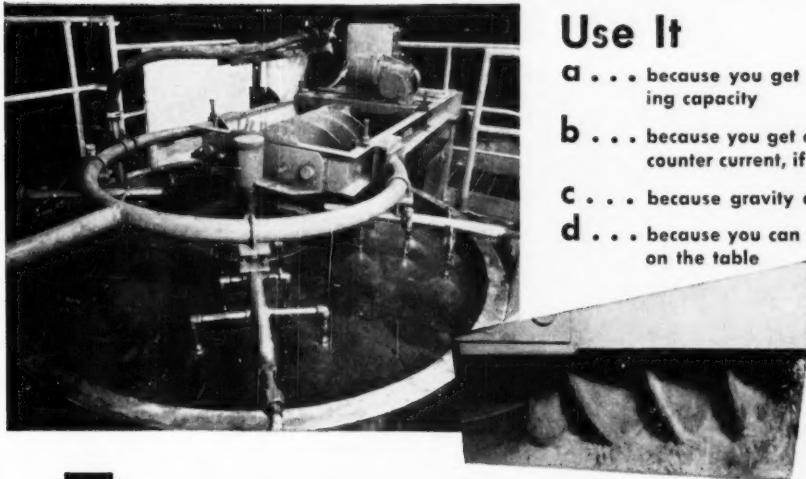
Flame-Plating: Tests to date, reports Linde Air Products Co. (New York City) indicate that Flame-Plated tungsten carbide coatings have the desired properties of sintered tungsten carbide without the limitations of the latter. For example, it claims that the coatings have wear and abrasion resistance equal or superior to the sintered version. Flame-Plating is Linde's method for applying thin coats of powdered metals to metal parts. The technique is applicable to a number of metals—like steel, cast iron, aluminum, copper, brass, bronze, titanium and magnesium—but most of the development work and all the commercial installations to date are based on tungsten carbide. Big advantage of the process, says Linde, is that the temperature of the base metal gets no higher than 400 F. during the plating, thus does not get a chance to warp. It also eliminates the possibility of any change in the properties of the metal.

Vacuum Sealers: Central Scientific Co. (Chicago) has brought out a new line of connectors for joining tubular elements in vacuum systems. Metal-to-glass connections are made with Type CHV connector which is specially suitable for making a leak-proof seal with the glass stem of a high-vacuum gage, says Central. It claims the "O" ring which compresses to make the positive seal is particularly well adapted for high-vacuum work at temperatures up to 200 F. Central's new line includes metal-to-metal connectors also.

Three to One: Three metallurgical and electronic firms have teamed up to form a new subsidiary of Sightmaster Corp. (New Rochelle, N.Y.). The subsidiary will be called Sightmaster of California, headquartered at Santee. The three firms: Electronic Division of Transport Products Corp. (Louisville) which was purchased; Technical Products and Services Co., obtained by exchange of stock; and Chemalloy Associates, also obtained by an exchange of stock.

Flow Control: Pneu-Trol Devices, Inc. (Chicago) is now marketing a flow control valve for application with either air or hydraulic liquids. The firm claims the new valve has greater sensitivity, can operate under higher pressures than conventional valves. It says it should permit control applications that were formerly considered impossible. The valve is made in five pipe sizes ranging from $\frac{1}{8}$ to $\frac{1}{4}$ in. Operating pressure is said to be up to 5,000 psi.

OLIVER HORIZONTAL FILTER



Use It

- a . . . because you get exceptionally high filtering capacity
- b . . . because you get excellent washing results; counter current, if desired
- c . . . because gravity aids all flow at all times
- d . . . because you can always see all the action on the table

The Oliver Horizontal Filter is now dewatering, washing and extracting with excellent results, many different products classed generally as granular, crystalline and fibrous, as for example:

silica gel
foundry sand
feldspar
caustic salt
carbon

zinc chloride
copper pyrites
cotton linters
sodium chloride
potash

calcium sulphate
polyvinyl chloride
monosodium glutamate
phosphate rock concentrates
oil extraction from meals

Operations are simple, as can readily be visualized by a study of the photograph. Feed enters at the dam just beyond the discharge scroll. Wash water or liquor is sprayed from one or more pipes, spaced at selected intervals. Cake is discharged by scroll or paddle wheel. Each of these operations is completely visible to the operator.

The Oliver Horizontal Filter is but one of nearly a score of distinctly different filters. This wide selectivity plus 45 years of filtration experience assures you of the most suitable filter for your problem.

Since the Oliver Horizontal comes in a wide range of sizes—4 to 165 square feet of filter area—and since it can be constructed of corrosion resisting materials—consider its use in your plant regardless of tonnage or corrosives to be handled.

Bulletin 218-R
gives
full details
of the Oliver
Horizontal Filter.
Send for
your copy.



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HERE'S WHAT WE MEAN—
ABOUT DRACCO "KNOW HOW!"

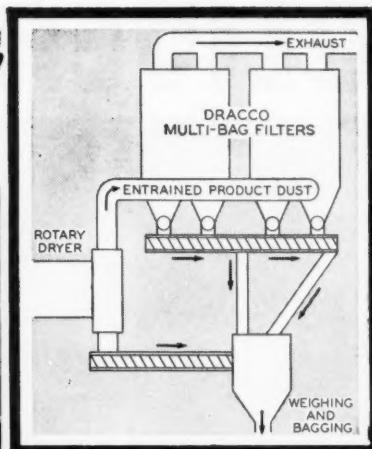
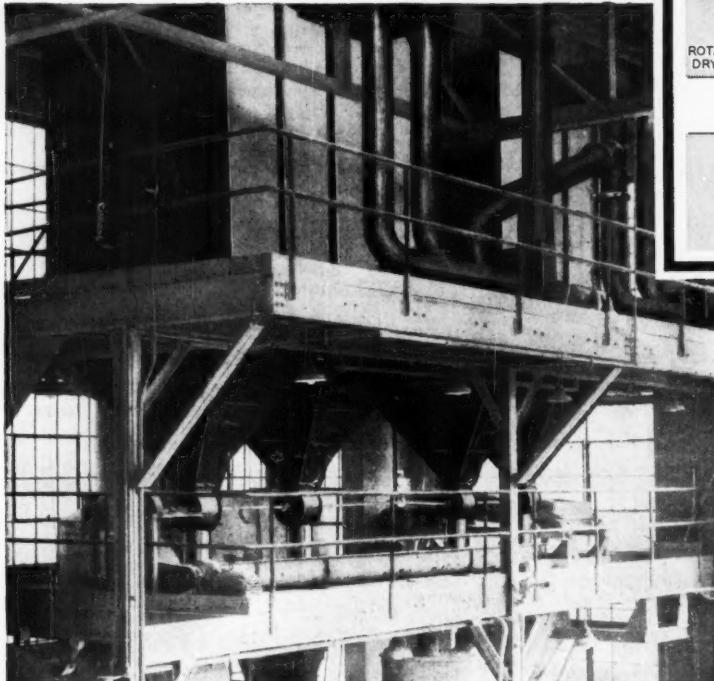


Diagram illustrates how Dracco units prevent costly loss of product in exhaust and move all product to weighing and packaging.

Air blast through rotary drier entrains product chemicals which are captured and recovered by Dracco Filters.

105-5

"Know-how"—at Dracco—is more than a "catch phrase"—it's the result of many years' experience in solving all types of dust control problems.

The importance of Dracco "know-how" to users of Dust Control Equipment is demonstrated by this case of a producer of organic chemicals.

This company employs a manufacturing process requiring the recovery of product dust from a drying operation. Former equipment was unsatisfactory in operation.

Dracco engineers were called in to solve the problem. They conducted a thorough engineering survey which resulted in a custom-engineered installation of Dracco equipment exactly fitted to this customer's

needs. Dracco units proved successful immediately, and have since provided trouble-free, essentially 100% product recovery.

If you have a tough dust control problem, you can rely on Dracco "know-how" to produce a profitable, "Performance-Proved" solution. It will pay you to get it done right the first time—by Dracco.

Call or write in for a Dracco Engineer—there is no obligation.

DRACCO CORPORATION
Harvard Ave. and E. 116th St. • Cleveland 5, Ohio

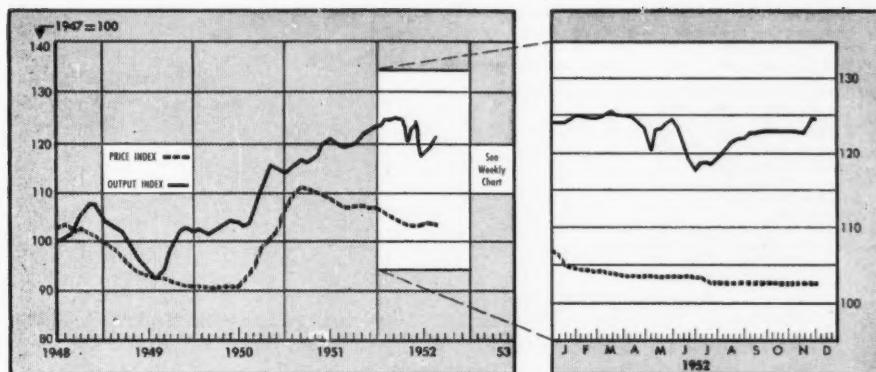
Write for Bulletin 529 and the Dracco Engineering Data Sheet which will simplify an analysis of your dust problem. Address Dept. W-12, Cleveland 5, O.



DRACCO
Airstream CONVEYORS • DUST CONTROL EQUIPMENT

Performance Proved

MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
 CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

The horse may be gone and the winter season over before Canada manages to lock the door on ethylene glycol shipments from the U. S. (CW, Dec. 6). The 20% duty—being urged by Dow Chemical of Canada and Dominion Tar & Chemical—has been referred to the Tariff Board, which began its hearings last week.

Cause of the possible delay: The board must also investigate the present price spread between the manufacturers' glycol price (\$1.70 a gallon) and the retailers' pricetag on permanent anti-freeze (\$5.90 a gallon).

Temporary relief from ulcers is all that newsprint buyers can expect from the present easing in supplies, says the Food and Agriculture Organization of the U. S. Long-range, feels FAO, the picture is still dark; demand is increasing faster than new capacity can be built. The organization is offering to supply technical assistance teams and help on research to any countries which would like to try pulping materials like straw, tropical hardwoods, bagasse, and bamboo.

With coal-based chemicals still uniformly on the firm side, all eyes turned last week to Morrisville, Pa., where one of U. S. Steel's spanking new batteries—with 87 coke ovens—pushed its first coke last week. But the ripple of interest is premature. It will be some time before Morrisville's benzene, etc., makes an impact on chemical trade channels.

Reason: The chemical by-products plant is not yet complete; U. S. Steel is not even making future contracts for its expected capacity. Meanwhile, by-product crude stocks are being stored for later processing. Probable first product: ammonium sulfate, sometime in January.

General-cargo imports have been holding up well in the face of the seasonal slump which usually occurs this month. The credit is being given to the large chemical shipments now reaching American ports.

The key commodities, mainly from Germany and Britain: potassium chloride, sodium bicarbonate, tanning extracts, naphthalene, and urea.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	124.5	124.3	125.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	102.4	102.2	106.7
Bituminous Coal Production (daily average, 1,000 tons)	1,673.0	1,800.2	1,880.0
Steel Ingot Production (1,000 tons)	2,196.0 (est.)	2,191.0	
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	259.6	257.1	240.8

MONTHLY INDICATORS—WHOLESALE PRICES (Index 1947-49=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (other than farm & foods)	112.8	113.0	114.5
Chemicals and Allied Products	103.5	103.9	108.6
Industrial Chemicals	112.7	113.9	120.9
Drugs and Pharmaceuticals	91.9	92.0	95.0
Fertilizer Materials	111.1	111.0	108.1
Oils and Fats	53.2	51.0	65.2

A "possible crisis" is the forecast of Federal Power Commissioner Harrington Wimberly in reference to the natural gas outlook. Talking to a meeting of the Interstate Oil Compact Commission, Wimberly called for better conservation and more discoveries.

Natural-gas-based chemical plants could sound a loud "Amen" to his sentiments (*see CW Report, May 10*).

USDA is swallowing hard on a castor oil problem. On the one hand the Munitions Board wants to see more oil produced for defense purposes, has backed up a 1953 price support program for hulled beans.

Southwestern U. S. farmers will get 9¢/pound or the market price for beans, whichever is higher. (This is a 1¢ drop from 1951 and 1952's 10¢ minimum guarantee.)

On the other hand the Agriculture Department is being urged to scrap the present 80% limitation on base period use of castor oil by all types of industrial users. The recommendation is made by the Industrial Oils Advisory Committee. USDA, however, will not commit itself beyond the usual, "We will consider the recommendations."

The industrial alcohol market was in an uproar late last week. Reason: Shell Chemical's bouncing the prices of ethyl and isopropyl alcohol back up to last February's levels. Proprietary ethyl returns to 57½¢/gallon (T.C.), 99% refined isopropyl to 47¢/gallon.

Chances are most consumers will be paying higher prices by the first of the year. Other major alcohol producers—fermentation and synthetic—have long bemoaned the unrealistic, and not very profitable, price situation.

Activity is picking up on another alcohol front. Two alcohol butadiene lines at Louisville, Ky., are being reopened by the RFC in the plant operated by Union Carbide and Carbon. Reason: The rubber industry has taken a long look at 1953—and liked what it has seen (*see Newsletter*).

The partial reactivation at Louisville, plus that at the Kobuta, Pa. plant, will add some 33,000 long tons per quarter to the national GR-S rubber production output.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending December 15, 1952

UP

	Change	New Price		Change	New Price
Potassium chloride, unit K ₂ O (2 producers)	.01	.43	Ethyl alcohol, gallon, (1 producer)	.145	.575

DOWN

Acetophenone, pound	.05	1.30	Benzyl acetate, pound (1 producer)	.01	.64
---------------------	-----	------	------------------------------------	-----	-----

All prices per pound unless quantity is stated.

When a phone call brings him nearer...



U·S·S COAL CHEMICALS

are in the picture

● The modern telephone—so familiar and so taken for granted by all of us—is another one of the hundreds of products that have been made available in greater quantities at lower cost through the use of U·S·S Coal Chemicals. The plastic used for the phone is an example of an end use of U·S·S Tar Acids which include Phenol, Cresols, and Cresylic Acid.

To complete the line of U·S·S Coal Chemicals there are eight others—Toluol, Xylool, Benzoil, Picoline, Pyridine, Naphthalene, Creosote Oil and Ammonium Sulphate.

Because U. S. Steel handles the entire production from mining of coal to final distillation, the uniformity of the finished chemicals is rigidly controlled. There are now nine U. S. Steel coal chemical plants in operation—and a tenth is under construction. For more information on any of these chemicals, write to United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pa.

U·S·S COAL CHEMICALS



UNITED STATES STEEL

2-1272



New Is Not Enuf

LET us determine that there is no undue hazard from chemical additives.

WHERE necessary, physiological response of laboratory animals is evaluated in relation to human exposure.

Send for Booklets on Toxicological and Bacteriological Services.



Deodorants

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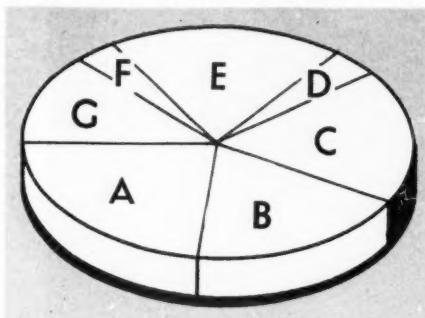
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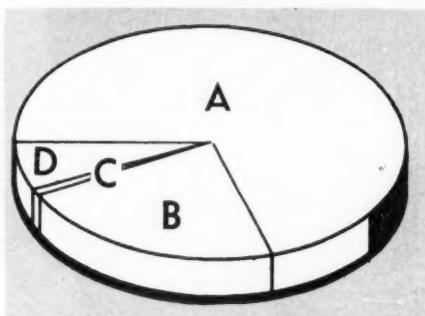
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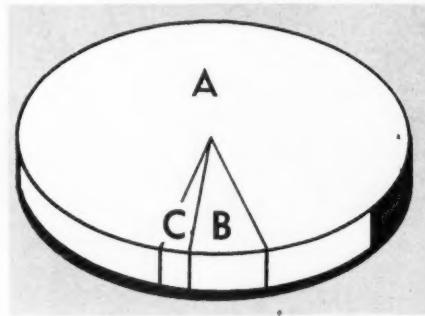
M A R K E T S



**NITROGEN
TOTAL**
1,500,000 tons
N₂



**PHOSPHATE
TOTAL**
2,435,000 tons
P₂O₅



**POTASH
TOTAL**
1,800,000 tons
K₂O

A Triple Growth Meets . . .

In the eight-month period ending last week, 39 different companies have received fast tax write-off certificates for fertilizer production facilities. The value of the write-offs alone exceeds \$180 million. It all adds up to a "new era" for both the producers—who are planning a total capital investment ranging up toward the \$400 million mark—and the farmers.

For the latter, it means a chance to climb into the driver's seat. During World War II, under the emergency pressure and encouragement, they saw the value of fertilizer demonstrated. Now, apparently convinced of the magic return from casting fertilizer

upon their fields, they've been demanding ever-increasing amounts of nitrogen, phosphate and potash. By this year their purchases are running at a \$1-billion annual rate.

Moreover, for years the U.S. Department of Agriculture and the National Fertilizer Association have labored to prove to the farmer that a dime's worth of fertilizer in his field is worth (more or less) a dollar of increased crop. But the eager students learned their lessons too well and clamored for more than there was.

This coming year, however, could mark the turning point. The time of balanced supply and demand appears

- A Ammonium Nitrate**
- B Ammonium Sulfate**
- C Other Solids**
- D Natural Organics**
- E N₂ Solutions and Cmpds.**
- F NH₃ for Ammoniation**
- G NH₃ for Direct Applic.**

- A Normal Superphosphates**
- B Conc. Superphosphates**
- C Wet-Base Goods**
- D Others**

- A Muriate of Potash**
- B Sulfate of Potash**
- C Manure Salts & Misc.**

Department of Agriculture estimates for the 1952-3 season.

plants were either rehabilitated or expanded without tax aid.

Just lately, another encouragement, higher price ceilings, has stimulated production of ammonium sulfate.

The result: Nitrogen is now growing more freely available.

Department of Agriculture figures, and DPA goal look like this:

	Tons of Nitrogen
1950-51	1,171,000
1951-52	1,360,000
1952-53 (est. supply)	1,500,000
1954-55 (DPA goal)	2,093,000

Nitrogen, then, might be regarded as a prime example of expansion for war or peace. And even though the 1955 goal boosts next year's supply by a third, expansion now in motion should hit the mark.

Potash: No one seems to be particularly worried about potash needs. A year ago material could be had; today stocks are no different.

Although producers are few, expansion is easy—just bringing more out of the ground. True, imports are holding at the 270 thousand-ton mark, but deliveries from U.S. sources apparently can be increased at will.

For potash, Department of Agriculture figures run this way:

	Tons Potassium Oxide
1950-51	1,337,000
1951-52	1,537,000
1952-53 (est. supply)	1,800,000
1954-55 (DPA goal)	2,132,000

The 1955 goal for potash thus figures as a modest 17% increase over next year's expected output. Suppliers should be able to reach it without even straining.

Phosphates: Last year, they were in particularly bad shape—far below requirements. Shortages were caused by lagging sulfur production and attendant tight sulfuric acid supplies. (Most phosphate fertilizers use the acid for manufacturing).

Phosphate, past and future, stacks up this way:

	Tons Phosphoric Oxide
1950-51	2,086,000
1951-52	2,208,000
1952-53 (est. supply)	2,435,000
1954-55 (DPA goal)	3,450,000

Combining the three individual ingredients in usual proportions, and converting into terms of finished fertilizers, gives the over-all total.

Finished-fertilizer production based on data for components:

1940-41	9,300,000
1950-51	18,700,000
1951-52	19,600,000
1952-53 (est. supply)	22,000,000
1954-55 (DPA goal)	30,000,000

Expressed as cash outlay at today's prices, the farmers may well be buying the fixed, ready-to-apply fertilizers at a \$1.5-billion annual rate in 1955.

Today, fertilizer men are counting on two forces to pull phosphates and, by extension, fertilizers, out of the pinch. These developments are (1) the sulfur easement and (2) a non-sulfuric (i.e., nitric acid) acidulation process.

Only last month the National Production Authority was persuaded that sulphur supply had caught up with demand. The improved supply, in the words of NPA, "resulted in large part because actual consumption fell below authorized use."

That sulfur is actually in such a good supply position will be put to the test soon. For DPA expansion—a mild 10% higher next year over today—climbs to a staggering 3,450,000 tons of P₂O₅ by 1955, no less than 40% atop next year's supply.

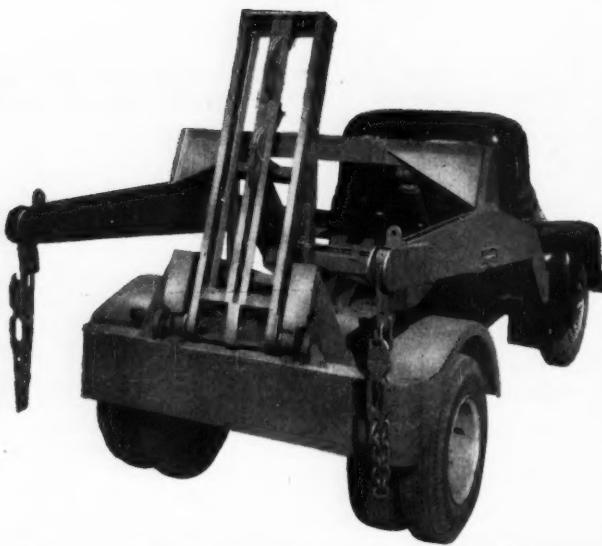
Some help may be expected from the second development, nitric acidulation. After many years of testing by TVA, nitrophosphate production will become a commercial reality. Requiring no sulfuric acid, three plants in the West and Midwest, now either being planned or under way, are expected to turn out a total of 500,000 tons of phosphate per year.

Up to the Farmer: Assuming sufficient fertilizer will be forthcoming, what will be the effect upon farm product prices and farmer attitudes toward using more?

Sherman E. Johnson of the U.S. Department of Agriculture recently expressed himself regarding the outlook. He believes that higher production—due to fertilizers—may require some shift to livestock production; which, in turn, would mean more fertilizer for grasslands.

Johnson pointed out, further, that "most farmers today are not using fertilizer at the most profitable rates under present conditions." In his opinion, most of them could use more fertilizer, increase their profits even in the face of somewhat lower farm prices.

For fertilizer producers it means that—the production race being won—it's time for an aggressive sales program to match their industry's capacity.



WHY USE 3 TO 5 TRUCKS... WHEN ONLY ONE WILL DO?

In many plants a Dempster-Dumpster, like the one above, operated by only one man, the driver, has replaced 3 to 5 conventional trucks and crews. The reason for this is that one truck-mounted Dempster-Dumpster serves scores of Dempster-Dumpster Detachable Containers up to four times the capacity of the average dump truck body. These containers are built in a wide variety of designs best suited to the type of materials handled—be they bulky, light or heavy . . . solids or liquids . . . trash or rubbish. Containers are conveniently located at accumulation points inside and outside buildings. To illustrate the flexibility of the Dempster-Dumpster System in handling all types of materials in your plant, we show, at right, a few of the

dozens of Dempster-Dumpster Containers built to meet every bulk materials handling need. And remember, one truck-mounted Dempster-Dumpster handles all containers, regardless of capacity or design.

The Dempster-Dumpster System eliminates standing idle time of crews and trucks . . . eliminates re-handling of materials . . . increases efficiency, sanitation and good housekeeping . . . cuts cost of truck equipment and operation tremendously. Without question, it's the most efficient and lowest cost method of bulk materials handling by truck ever devised! The chances are this system will save you thousands of dollars annually. This equipment manufactured and sold exclusively by Dempster Brothers, Inc.



WHEN A CONTAINER IS FULL, the Dempster-Dumpster picks it up, hauls to destination and dumps the materials or sets load down intact. These three simple operations, shown above, are hydraulically controlled by driver in truck cab.



Drop Bottom Container built up to 10 cu. yd. capacity to handle heavy materials.



Tank Type Container meeting A.S.M.E. specifications. Capacities up to 1,200 gallons.



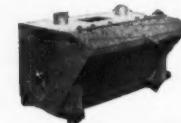
Tilt Type with Converged Lip for handling fine aggregate, wet or fluid materials.



Drop Bottom Pressed Steel Type for lighter service.



Universal Type built up to 12 cu. yd. capacity with top and end doors.



Five cu. yd. container with swivel casters for handling waste blast sand.

DEMPSSTER BROTHERS, 2122 Dempster Bldg., Knoxville 17, Tenn.

SPECIALTIES . . .



CSMA AWARDS: Payoff for attractive, pertinent aerosol packaging.*

Gathering in Gotham

Thirty-nine and forty need hold no fears—that's the optimistic attitude at the 39th annual CSMA meeting, and the outlook for next year's confab.

Gathered to get the latest word on new developments, the specialties makers didn't appear too worried about possible legislative regulations in '53.

A nod of respect to the firmly established Peet-Grady test, and a note of glamour with Miss Aerosol were incidental highlights of the specialist's conclave.

Showing signs of fatigue from the heavy convention season, but spirited by good sales and good prospects, 650-plus members of the Chemical Specialties Manufacturers Assn. moved into the Hotel New Yorker in New York City last week for the organization's 39th annual meeting.

The group got down to work in a hurry. Scheduled officially for December 8 and 9 (Monday and Tuesday), much of the committee-meeting groundwork was put out of the way during a busy Sunday preceding the slated gathering time.

Faced with sudden public concern on the flammability of aerosol hair lacquers, the association moved fast, hit the papers Monday with a steady proclamation. The statement featured a graphic demonstration that showed how these lacquers actually extinguish a lighted cigarette, pointed out that there has been no

trouble reported on the 8 million units already sold, and reemphasized precautionary labeling (CW, Dec. 13).

Light Luncheon: Brightening up Monday's luncheon was the awarding of the prizes in the Aerosol Div.'s aerosol packaging contest. Pert Harriet Jones, Miss Aerosol of 1952, bestowed plaques upon the six winners.* And in a mid-day program the next day, the spotlight was turned on the older members of the organization; recognition was given to the 20th anniversary of the Peet-Grady method for evaluating household insecticides.

In elections Monday, the officers of CSMA were retained in their positions. That means one more term in office for Clarence L. Weirich (C. B. Dolge Co.), president; Melvin Fuldfeld (Fuld Bros., Inc.), 1st vice president; T. C. Parkinson (McCormick & Co.),

* Flair's Pine Air (packed by Aeropak, Inc.); Bridgerton's Dustless Brass; Plastic Spray; Plastikote's Auto Foam; Colgate's Palmolive Rapid Shave (Regal Chemical Co.); Bostwick Lab's Hero Fire Extinguisher.

2nd vice president; P. C. Reilly, Jr. (Reilly Tar & Chemical Corp.), treasurer; and H. W. Hamilton, secretary. Three new members of the Board of Governors were also elected: M. J. Flanagan (Federal Varnish Div., Enterprise Paint), Frank J. Pollnow, Jr. (Vestal, Inc.), and Carlos Campmeier (Rohm and Haas Co.).

The general sessions—even though they were concerned with such industry-wide problems as upcoming legislature sessions in 44 states and possible further federal regulation spurred by the Delaney Committee—didn't seem to dull the generally bright picture for specialties makers. Product liability—long a closed door subject—was openly discussed for a change. Using past court cases as pointers for the future, George Burroughs outlined a recommended course of action for his listeners.

Hitting on All Six: The various CSMA divisions, in their individual meetings, covered a wide range of subjects. Here are the highlights:

- The recently formed Automotive Division (a sixth division created only last June by the CSMA) jumped into full stride Monday with its own nine-point program; then joined in on Tuesday with the Aerosol Division for combined meetings.

- Leadoff for the aerosolers, after introductory reports, was a symposium on packaging foam products—the rash of aerosol shave creams in past months has underlined their importance. The industry gave itself a pat on the back Tuesday with the Du Pont aerosol dealer survey, which points up the wider distribution, the broader consumer acceptance of aerosols; and also emphasizes buyer's top objections.

- Jamming parlor F on Monday, the Waxes and Floor Finishes Section caught up on the wax situation. Highlights: Helen Wassell's paper on retention of amines in wax polish and amine soap films; just-back-from-Europe Charles Marsel's remarks on montan wax and its derivatives; and (Tuesday in the roomier North Ballroom) Bruce Clary's discussion of petroleum waxes.

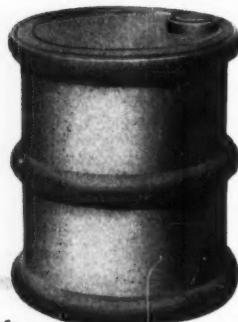
- The Insecticide Division featured a pair of symposia, plus discussion of new products. Insecticide makers picked up their ears at news of a USDA-developed mothproofer, EC 53, in which the department seeks to interest manufacturers (see below).

- Specialized problems of its industry were first-session subjects for the Soap, Detergents & Sanitary Chemical Products division. Tuesday, the role of alkaline builders came up for a panel's attention.

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SPECIALTIES

• Out to give hexachlorophene a run for its money is Actamer, a Monsanto-developed product, discussed at the Disinfectant and Sanitizers meeting.

The group also heard reports on fundamental technical phases concerned with sanitation.

Midyear in Midwest: As usual, Monday night's open house was a high point in the confab. But the giant New Yorker presented quite a problem to the members who didn't like to depend on the slow-running elevators: It took visitors some time to make the rounds of suites liberally scattered throughout the forty-story hostel.

The 39th Midyear meeting is planned for the Drake Hotel in Chicago, in mid-May, while the 40th annual congress is slated for early December, 1953, at the Mayflower in Washington.

Oleo Boost: Sterwin Chemicals Inc. has come up with a new product combining vitamin A and certified food color for use in margarine. The preparation combines processes for coloring and fortifying, and permits a visual check on the addition of vitamin A to margarine.

Laundry Lather: A new soap made

especially for use with side-loading washers in quick-service laundries has been introduced by Colgate-Palmolive-Peet. Featured are controlled suds and special additives to cut dust.

Coating Cure: A new neoprene protective coating which may be applied by brush, dip, or spray has been developed by Connecticut Coatings, Inc., for use on unprepared surfaces. Proco Liquid Neoprene Coatings is claimed to air cure at normal temperature, and said not to gel or "set up" in the container.

Laminated Pouch: The d-Con Co., Inc. (Chicago) has introduced a new package (acetate laminated to a heat seal coated pouch paper) to merchandise its dry concentrated rodenticide, Warficide. Insured against moisture, each Warficide package makes one quart of treated water, and is used specially in the control of Norway rats.

Ottawa's HX: First product of the Ottawa Chemical Co. (Toledo, O.) available for distribution to the public will be HX, a household antiseptic, whose principal ingredient is p-chloro metaxylol (PCMX). Ottawa has produced PCMX for general use in soaps and



Insulation that Floats

LIKE IVORY SOAP, this insulation's big advantage is that it'll float. Three inches under the worker's hand is the molten surface of a zinc-filled vat used for galvanizing wire. Yet so effective is the floating blanket that he can

hardly feel the heat. Not that this is the purpose of the insulation—made of fluffed vermiculite. Rather, it's a handy, effective way of keeping the molten metal at the proper temperature.

THERE'S A TOUCH OF TENNESSEE IN MERRY CHRISTMAS



*In Dad's necktie,
in Mother's handbag,
in Junior's socks,
in Sister's compact,
in Baby's toys.*

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across the nation whose
business has made
Tennessee Products what
it is, and to the millions
of Americans they serve—
a Merry Christmas
and a Happy New Year.*



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WOOD CHEMICALS • AGRICULTURAL
CHEMICALS

Season's
greetings



SPECIALTIES . . .

industrial cleaning fluids for several years.

Fiber Reagent: Brown & Forth, Ltd., is importing Neocarmin, a reagent said to be capable of rendering the individual types of fiber recognizable within a few minutes. Time consuming processing is eliminated, and simple procedures, irrespective of tissues and mixed fibers, are used.

Polyethylene Wax: Semet-Solvay's new Alcowaax (see p. 62) is being aimed at most present wax uses. A white, translucent material, its melting point is approximately 100 C. This, plus its low melt viscosity, makes it readily dispersible in various other waxes at moderately low temperatures. Coatings for paper, polishes, and latex dispersions are among the new outlets being developed.

Fertilizer: The board of directors of the Cooperative Grange League Federation Exchange, Inc., has authorized a new fertilizer plant to be built in Big Flats, N.Y. Location, cost, and construction date have not yet been determined.

Insecticides: Baton Rouge will be the location of two new industries with combined investments of \$1 million: Chemical Solvents Co. and Kan-Jax Chemical Co. Both companies, associated with Cook Chemical Co., Kansas City, Mo., will manufacture insecticides.

Eye to the Buyer

Got a new specialty? Want to know if the name's appropriate and appealing to the consumer public? Is the package eye-catching and sales-provoking? Might be time to try psychometrics.

Fred B. Porter, president of the American Council of Commercial Laboratories, at a recent meeting of American and French industrial and educational representatives, explained psychometrics (*psycho*, mind; *metric*, measurement) like this:

Working on the axiom that anything which exists can be measured, ACCL endeavors to take the guess-work out of consumer testing. It isn't done by polling public opinion; it's done in commercial labs that ordinarily do physical and chemical testing.

Suppose a manufacturer wants to know the sneeze-provoking properties of a detergent, or the legibility or attention value of a package, or the ease of opening a container, or the "feel" of a fabric. To get the answer,

the testing laboratory takes a selected panel of people, places them under the direction of a trained psychologist. Reactions to various products and test questions are noted and evaluated by the psychologist. From this, the lab experts boast, they accurately predict the reactions of the general public.

Trial by Jury: For example, to select a brand name for a new product, the panel questions concern appropriateness ("Morning Mist" is good for women's cologne, but not for after-shave lotion); ease of memory (maybe it's alliterative); euphony (the customer likes the sound of saying it); and ease of pronunciation (it's clear and easily spoken).

For the most part, laboratories already dealing with cosmetics, foods, and textiles have taken on this new phase of product examination. One leading enthusiast for psychometrics is the U. S. Testing Co., Inc. (Hoboken, N. J.), but there are many others well along in psychometric utilization, too.

Maybe consumer preference is often "only in the mind," but so far as psychometrists are concerned, they can interpret their test reactions statistically like the results of any other scientific test.



Moth Resistant Rinse

USDA chose the CSMA's meeting to show off its EQ-53, a moth proofing rinse for woolens that will be a snap for the housewife to use. A DDT and wetting agent formulation, it is added to the laundry rinse for woolens, offers months of storage protection. Formulation is available to manufacturers; the USDA hopes the Army-tested product will be on dealers' shelves by spring.

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HUNDREDS OF FORMULAS for different types of wax in our files prove that Allied builds the wax formula to suit the product—

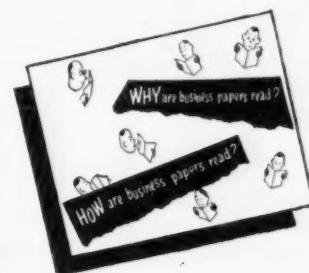
- for any temperature — warm or cold
- for any material — metal, rubber, paper, wood or plastics
- for any method of application — laminating, brush, roller-coating or spraying in any form — slabs, drums or solution

Allied starts in where others leave off in the compounding of special waxes. Our highly skilled staff of laboratory technicians are constantly delving into new applications . . . new fields of use. Allied will take any wax problem and give you that worthwhile extra in service and results.

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DISTRIBUTION . . .

Beside the Coke Ovens

The nation's largest merchant coker breaks new ground with a plant to produce petrochemical products.

Semet-Solvay starts with a wax-like polyethylene and a "synthetic" benzene; other derivatives will follow.

Semet-Solvay is an old-line organization with a new spring in its step. Not only are its sales of coke and coal chemicals booming at an all-time high, but this Allied Chemical & Dye division, under President Albert Scherm, is making news this week by forming a Petrochemical Sales group to market a series of new products derived from petroleum.

The first entry: Alcowax, a polyethylene-type polymer. The production site: Buffalo, N. Y., where a new plant is being built alongside Semet-Solvay's line of coke ovens. Another product which will come from the same process is described as synthetic benzene.

Alcowax itself is a close relative of Du Pont's and Carbide's polyethylene, but there is a significant difference. Whereas the older products have

molecular weights ranging above 7,000, the newcomer weighs in at 2,000. That gives it characteristics similar to many waxes and outlines the first markets which will be tackled.

Low Melt: Semet-Solvay's general sales manager, Dave Foster, is now completing his preliminary market survey. The prediction: For uses which require polyethylene's impervious characteristics—but from which it has been largely excluded because of its high melting point (e.g., polyethylene-coated paper)—Alcowax has a waiting market. The probable price: 40¢-60¢ per pound, competitive with commercial polyethylene.

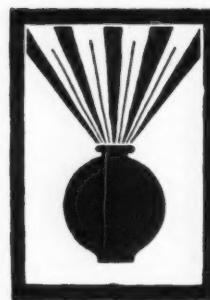
A bigger-than-normal pilot plant is currently producing the experimental lots needed to back up this testing survey. Some time next year, probably in the summer, the full-scale, 20 mil-

lion-pound-capacity plant will go on stream. The government has thought enough of the project to grant it a \$6.9 million certificate, of which 70% will have accelerated depreciation.

Semet-Solvay picked up its new venture from Allied's central research laboratories at Morristown, N. J. That's the same new-products fountainhead which yielded the nylon process which is being brought to a commercial stage by National Aniline. The reasons behind Allied's decision to hand Alcowax to Semet-Solvay are many and varied. But not the least of them is the fact that the basic raw material, ethylene, is obtained from petroleum derivatives through a technique developed by Semet-Solvay's Engineering Division.

Hot Coke: Looking ahead, the Allied division has big plans for its new petrochemicals unit. Other materials—some co-products of the same process which makes the ethylene raw material, and others derived from the ethylene—are now being explored.

But Semet, the largest merchant coke producer in the country, has no thought of abandoning its position in its historic field. Its coke and by-product sales are running at capacity



"Perhaps it might explode"



"Keep away from fire"



"It's poisonous and toxic"



"Corrosive—watch out!"

Pictures Instead of Words

Pictured here are the simplified warning designs decided upon at the Geneva conference of the Chemical Industries Committee, International Labour Organization.

NPA's C. C. Concannon was chairman of the 20-member "Working Party," representing ten different countries, which culled over suggestions for the classification and labeling of dangerous chemical substances. Its primary intent was to reach a uniformity of practice for commodities which move in international trade. For ILO, that's an am-

bitious project and one that will take years of patient effort.

ILO has accomplished one important maneuver, however: It has decided on labels without words. This is a neat jump over the language barriers, and provides protection, at the same time, for illiterate workers in any country. For the sake of the latter, too, the labels were restricted to five types. This will make them easy to remember, and yet flexible in that they can be used in various combinations.



"It's dangerously radio-active"

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"she might have been my kid..."

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- Have you arranged to have a Bloodmobile make regular visits?
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- Have you informed your employees of your company's plan of co-operation?
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Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent*!

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why *I'm* giving blood."

Yes, all kinds of people give blood—truck drivers, office workers, salesmen. And—for all kinds of reasons. But whatever *your* reason, this you can be sure of: Whether your blood goes to a local hospital, a combat area or for Civil Defense needs—this priceless, painless gift will some day save an American life!

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levels, and additional ovens are being built.

It's a field which the company first entered in 1885 when it was organized as a coke-oven building and operating affiliate of Solvay Process. The latter, just three years earlier, had erected the first by-product coke ovens in America.

In addition to this construction work (now being handled by Allied's Wilputte Coke Oven Co.), Semet-Solvay operates four coke plants and one light-oil processing facility. The latter, at Syracuse, N. Y., was a pioneer in producing pure grades of benzene and toluene.

Most of the chemical products from these plants, other than coke, find their way into chemical commerce by way of use in—or sales by—other Allied divisions. The Nitrogen Division handles Semet's ammonia which is available for sale outside the corporation, while Barrett markets the surplus benzene-toluene light-oil products and further processes Semet's coal tar.

All of these commodities have provided the division with a steady growth pattern. But now, with its new petrochemical project, it is entering into a new era. There's no ceiling in sight on expansions in this burgeoning part of the chemical industry.



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Warner-Chilcott Laboratories, the new outgrowth of Warner-Hudnut Co., will combine the research, production, distribution and sales facilities of Chilcott Laboratories and of William R. Warner & Co., the two pharmaceutical divisions of Warner-Hudnut.

Formerly specializing in research, Chilcott will now make use of Warner's diverse foreign and domestic coverage for distribution of its ethical products, whereas Warner will be able to develop new products through Chilcott's extensive research facilities. Their pharmaceutical total is expected to hit the \$30 million mark in 1953.

* Elmer Bobst (left), president; Charles Sillaway (right), vice-president; Robert Davis (center), executive vice-president.

For the parent corporation's president, hard-selling Elmer Bobst, the move signals one more forward step for Warner-Hudnut. His firm has come a long way from the pink-pill days of 1866—and even farther from the company's start in a pre-Civil War Philadelphia drug store.

The combined sales force will be controlled from New York, under Charles Sillaway. No reduction in the payroll is planned; rather, the enlargement of the staff brought on by the merger will result in smaller territories for the salesmen—with more concentration. Groups of eight to ten will undergo rigorous training programs to learn the necessary pharmaceutical facts before they undertake the selling of Warner-Chilcott's combined products.

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P 6202 Chemical Week

330 W. 42 St., New York 36, N. Y.

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P 6099 CHEMICAL WEEK

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Crusher—Allis Chalmers, Two Roll 18 x 36. Loeb Equip. Supply Co., 1927 A W North Ave., Chic. 22.

Cylinders—1,200 Oxygen, 244 Cu. Ft. Capacity. 200 lb. CO₂, 1,000 40 Cu. Ft. Oxygen, Round Bottom, Reconditioned and Tested. 200 Foreign Made Oxygen, 250 Cu. Ft. Capacity, Round Bottom. 100 D Size Nitrogen Oxide, 250 Aluminum 12 x 18, 350 lb. Freon. Available for Immediate Delivery. All Cylinders listed in Excellent Shape. Dye Oxygen Company, Inc., Mfrs., 3332 W. McDowell Road, Phoenix, Ariz.

Dryer—American Double Drum 42" x 120". Loeb Equip. Supply Co., Chicago 22.

Dryer—Rotary 41 1/2" x 28" Direct Heat. Loeb Equip. Co., 1927-A W. North Ave., Chicago 22.

Dryer, Vac. Shelf 20 shelves, 59 x 78, pump cond. (6). Consolid'd Prod., 18 Pk. Row, N.Y. 38.

Dryers, 2 Stainless Drums; 5 x 10". First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Dryers—Rotary, 8' x 54", dir. heat, roll. brngs. Consolid'd Prod., 18 Pk. Row, N.Y. 38.

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Filter Press, 18" x 18", Sperry, Iron, P & F, 11 chambers. (20). Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 42" x 42", Iron, Shriver, 18, 27, 36, 54 Chambers. (12). Consolidated Products, 18 Park Row, N.Y. 38.

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Labelers, All types, Rebuilt & Guaranteed. Process Industries, 305 Powell St., Brooklyn.

Mills, Raymond #5057, High Side Roller. (2) Consolidated Prods., 18 Park Row, N.Y. 38.

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Mixers, 700 gal. Turbo, Simplex, Jktd. (2) Consolidated Products, 18 Park Row, N.Y. 38.

Mixer, horiz. ribbon, 14' x 7' 6" x 6'. jktd. 450 cu. ft. Consolid'd Prod., 18 Pk. Row, N.Y. 38.

Mills, Day 14" x 30" 3 roll high speed roller. (8) Consolidated Prod. Inc., 18 Park Row, N.Y. 38.

Pebble Mills; 8' x 8", Porcelain lined. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Pebble Mills 10 gal. to 800 gal., porcelain lined 300. Consolidated Products, 18 Park Row, N.Y. 38.

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Reactors, Plated Jktd. 400 Ga. First Machinery Corp., N.Y. 13, N.Y.

Screens—Tyler Hammer 4' x 10' double deck. Loeb Equip. Supply Co., Chicago 22.

For Sale

Tanks—2—2725 gal. tanks; same as above specifications except length—these are 20' long. Tanks were used in milk tank truck services. Can be loaded on trucks at present location or on cars at nearby Railroad siding. Leonard H. Himes, Exton, Pa. Phone—Exton 760.

Tanks, Steel, Processing, 15,000 gal. vertical, 80 lbs. int. pr.; Turbo agitator 40 HP, coils. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, Alum, closed—330, 480 and 1450 gal. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks—2—2725 gal. tanks; same as above specifications except length—these are 20' long. Can be loaded on trucks at present location or on cars at nearby Railroad siding. Leonard H. Himes, Exton, Pa. Phone—Exton 760.

Tanks, 5.5, from 30 gal. to 5700 Gal. Perry Equipment Corp., 1415 N. 6th St., Phila. 22, Pa.

Tanks—6—2250 gal-type 18' stainless steel 60" Diameter—16' long—20" manhole on top with 3" outlet connection in middle cover. Air outlet in top and at bottom good for 30 lbs. air pressure; 1 1/2" work insulation, mild steel outer jackets, most of them recently new insulation. Tanks were used in milk tank truck services. Can be loaded on trucks at present location or on cars at nearby Railroad siding. Leonard H. Himes, Exton, Pa. Phone—Exton 760.

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Machinery, Chemical and Process. Everything from single item to complete plant. Consolidated Products, 18 Park Row, N.Y. 38.

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FOR SURPLUS VALVES & FITTINGS
PIPE COUPINGS IN ALL SIZES
BLACK & GALV.

Now is the time to clean out your dead stock
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17 Chemical Week
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Effective with the January 3, 1953 issue, advertising rates in the "tracers" section will be as follows

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DISPLAYED

\$13.25 per column inch per insertion
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tracers
CHEMICAL WEEK
330 W. 42nd St., N.Y. 36, N.Y.

chemical process industries

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Urea—Commodity Trading Company, 96 Wall St.,
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Chemical Service Corporation

READY TO BUY
Chemicals, Plasticizers, Solvents
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96-02 Beaver Street, New York 5, N. Y.
HAnover 2-6970

SPECIAL SERVICES

Processes

Chemical packaging and sales service available.
Mixing and filling of liquids from 4 ounces to
tank cars. Mixing and packaging of powder dust
and other materials to cellophane. Excellent warehousing
and shipping facilities. Present sales force four
men covering Rocky Mountain Empire states.
Chem. Corp. of Colo., P.O. Box 777, Den., Colo.

CUSTOM SPRAY DRYING

Complete facilities for limited or volume spray
drying. We offer over 20 years of experience.

SPRAY DRYING SERVICE, INC.
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Truland Chemical & Engineering Co., Inc.

AVAILABLE CUSTOM REFINING FACILITIES
Distillation, Extractions
Separations, Fractionations
Drum Loads, Tank Cars

WANTED
All Types of Crude Mixtures
By-Products, Residues, Wastes
Corrosive Solvents

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Processes

NEED ADDITIONAL PROCESS CAPACITY?

Perhaps your company can eliminate a
costly expansion program or take the burden
from your present facilities . . . because of
the expansion program of a well-known
processor of heavy chemicals, located in the
Middle Atlantic States.

Modern, well-equipped plant facilities, and
personnel are immediately at your service to
supply with any or all of the following:

Dry Processing

10 to 50 tons capacity per day. Mixing,
coarse grinding, roasting or calcining with
subsequent wet or dry grinding; liquid-solid
separation.

Wet Processing

5,000 to 20,000 gallons per day. Mixing;
Liquid-liquid, and liquid-solid reactions;
agitation; filtration; vacuum evaporation;
crystallization; drying.

Bulk Packing

Complete facilities for handling drums, bag-
ging, and carload shipping.

Utilities

Water 300 gpm; steam 30,000 lbs. per hour
at 100 lb. pressure; electric power now 2,000
KW, can be increased rapidly.

Transportation

Private railroad spur; excellent trucking
location.

Permanence

This is not a temporary situation, so long
term arrangements can be discussed for all
or a part of available facilities.

We shall be glad to discuss details with you
or your associates.

CW 6289 Chemical Week
330 W. 42 St., New York 36, N.Y.

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For Sale

FACTORY OPPORTUNITY

LOCATED — NEAR NEW CASTLE
WILMINGTON, DELAWARE

18,000 sq. ft.—Factory Office Space in expanding
industrial area where very few opportunities are
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Close to Delaware Memorial Bridge

Main North-South Highways

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Near Marine Terminal

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Good lights and ventilation
All utilities low rates
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Realtor

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the advertisement you are answering.

DISTRIBUTION . . .

already maintained by Warner in almost every country outside of the Iron Curtain, will provide larger markets for Chilcott products. Acceleration of Chilcott's Pan-American line, for instance, will be made possible through Warner's enterprises in that area.

Foreign sales, says Bobst, call for a different approach from domestic marketing, since foreign interests are different. In India, for example, more emphasis will be placed on analgesics, which are fast becoming very popular.

Warner's use of Chilcott's laboratories, on the other hand, will enable them to produce more new products for distribution in their current outlets. Bobst avers that over \$1 million will be spent on ethical research in 1953. The firm will concentrate on cardio-vascular diseases, with emphasis on prophylaxis; cancer will also receive attention. Doubling of the present size of Chilcott, in Morris Plains, N.J., is expected to provide adequate facilities for the new expansion program. Other research activities will be carried on in St. Louis and New York.

It all goes to prove, says Bobst, that teaming research and sales together can make the whole bigger than the parts.

Tube Temper

Managing directors of industry associations can usually be counted upon to give their members a pat on the back and a few words of encouragement. But Paul Hanway of the National Fibre Can and Tube Association decided, at the group's recent year-end meeting, to take a different tack.

He felt it was time to underline the industry's shortcomings—without mincing any words. His bill of particulars:

- "Hundreds of new inquiries which pour through our offices clearly indicate that the public, as well as the industry, are uninformed as to the qualities and potential savings which your products offer."

- "Only a few of the establishments of your industry actually give much attention to market research, and those which do so are known to you as the most aggressive and growing concerns in your group."

- "You are but lately awakening to the wide expansion which added qualities offer in tremendously broadening the scope of uses of your products."

Glossing lightly over the fact that the association's members have witnessed a 600% growth in their total

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DISTRIBUTION . . .

sales over the past twelve years, Hanway said flatly, "The industry has been doing but little better than to hold its relative position over the years."

Chemical industry purchasing agents and packaging experts—if they feel renewed pressure from their fiber-tube-and-can suppliers during the next few months—can point the finger at aggressively outspoken Hanway.

Water Worry: The Illinois Central and Louisville & Nashville Railroads have petitioned the Southern Freight Association for a sizable reduction in coal rates into Louisville, Ky. What has them worried: the increasing shift from rail to barge shipments.

Malden Move: Wyeth Incorporated (Philadelphia) has opened a new warehouse in Malden, Mass., to handle accounts in metropolitan Boston and five New England states. This is the fifteenth warehouse for Wyeth in its cross-country coverage. Another one will be opened, in Minneapolis, early next year.

Molded Sheets: The Resistoflex Corp. (Belleville, N. J.) has started the molding of large-size polyethylene sheets. Measuring up to a yard on the side, and from one-sixteenth to one inch in thickness, the sheets are either made out of straight polyethylene or reinforced with Fiberglas fabric.

Into Akron: Hercules Powder has opened a new sales office in the Rubber City. The address: 7 West Bowery St., Akron, Ohio.

The Right Question

Like a man asking his wife if she would like a fur coat for Christmas, the Office of Price Stabilization has sent out a questionnaire which will probably bring forth predictable answers.

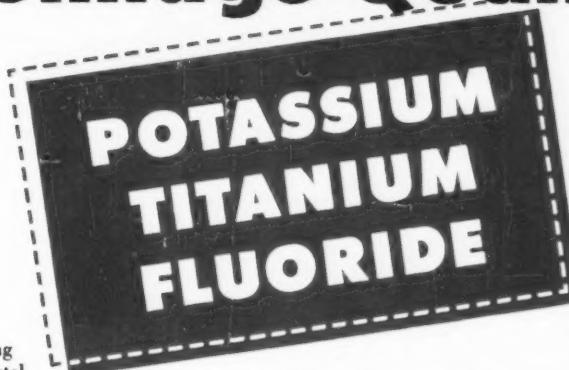
The query: a request to fertilizer mixers for a breakdown on their increased costs due to the recently higher ammonium sulfate prices. In addition, data is being sought on labor, power, and other costs. From this, OPS will make an earnings study to determine whether or not the mixers should be given a set of higher price ceilings.

The agency has asked that the forms be returned by the end of the year—pointing toward action on or about January 1.

The last increase took place in August when new ceilings were allowed to compensate for higher freight rates.

155

Now! Another B&A Fluorine Compound in Tonnage Quantities!



To serve the growing needs of the light metal industry, Baker & Adamson has recently inaugurated commercial production of high-purity Potassium Titanium Fluoride at its B&A Works, Marcus Hook, Pennsylvania. This marks another step forward in B&A's long-term program for the production of a wide range of inorganic fluorides in tonnage quantities.

For more than two decades Baker & Adamson has conducted extensive research in the field of fluorine chemistry. Today, it is geared to produce virtually any inorganic

fluorine chemical that Industry might require. Listed below are the many fluorine compounds B&A now offers in commercial quantities. Many others are in the development stage.

If your present or projected operations call for Potassium Titanium Fluoride, or any of the other products listed below, make B&A your source.

For further information, check those that interest you and return the coupon clipped to your company letterhead.

BAKER & ADAMSON *Fine Chemicals*

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.



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Please send me further information on the items checked.
I am interested in them for:

- Process use
- Research

ACIDS

- Fluoboric Acid
- Hydrofluoric Acid

ACID FLUORIDES

- Potassium Bifluoride

ALKALI FLUOBORATES

- Ammonium Fluoborate
- Potassium Fluoborate
- Sodium Fluoborate

ALKALI FLUORIDES

- Potassium Fluoride

DOUBLE FLUORIDES

- Potassium Chromium Fluoride
- Potassium Titanium Fluoride

METAL FLUORIDES

- Aluminum Fluoride, Cryst.
- Chromium Fluoride
- Copper Fluoride

METAL FLUOBORATE SOLUTIONS

- Copper Fluoborate
- Ferrous Fluoborate
- Indium Fluoborate

NON-METAL FLUORIDES

- Boron Fluoride Gas
- Boron Fluoride-Diethyl Ether Complex
- Boron Fluoride-Phenol Complex
- Sulfur Hexafluoride

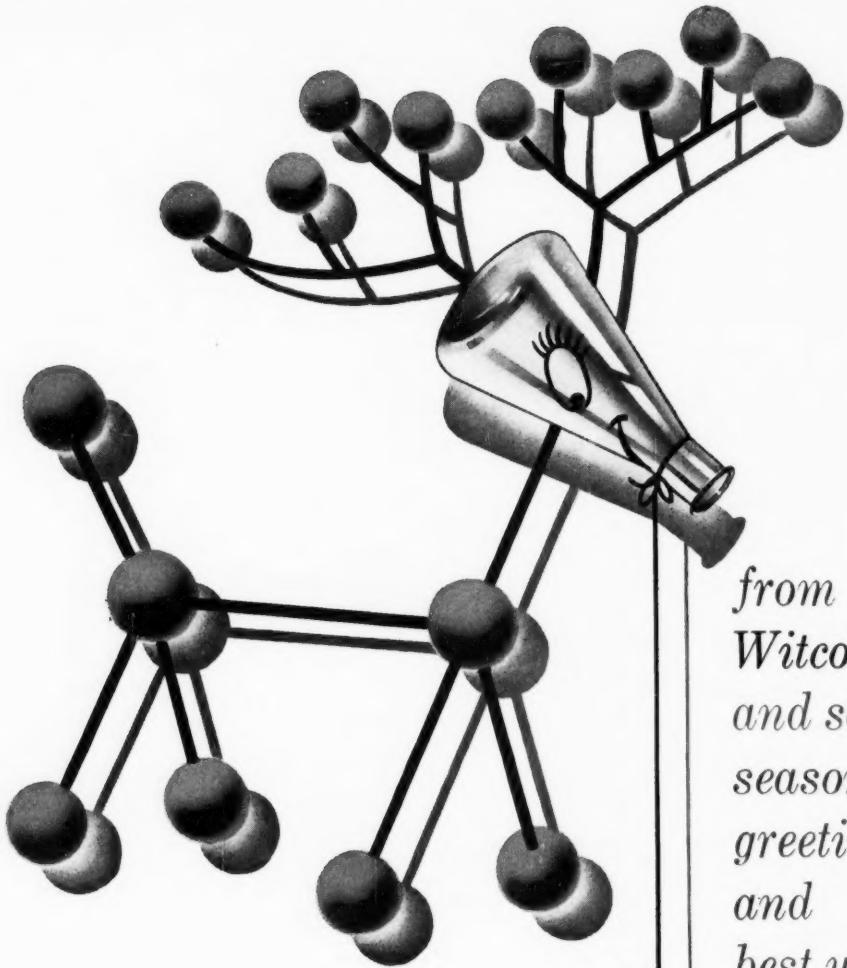
HALOGEN FLUORIDES

- Chlorine Trifluoride

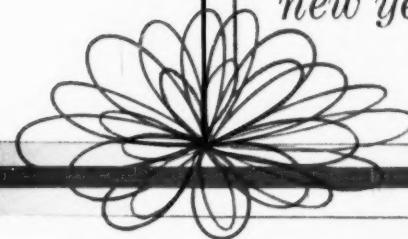
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and
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for the
new year*



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